IMPACT OF HYPERTENSION ON RENAL DISEASE AMONG RENAL PATIENTS

By

Rengalakshmi. A

A DISSERTATION SUBMITTED TO THE TAMIL NADU DR. M.G.R MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MASTER OF SCIENCE IN NURSING

APRIL 2012

IMPACT OF HYPERTENSION ON RENAL DISEASE AMONG

RENAL PATIENTS

Approved by the dissertation committee on: _____

Research Guide :

Prof.S.Ani Grace Kalaimathi
M.Sc (N)., PGDNA., DQA., Ph.D.,
Principal,
MIOT College of Nursing,
Chennai-116.

Nurse Guide :

Prof. N.Jayasri
M.Sc (N)., M.Phil., Ph.D.,
Vice principal cum
H.O.D,Medical-Surgical Nursing,
MIOT College of Nursing,
Chennai-116.

Medical Guide :

Dr.Ganesh Prasad
DNB(Genmed)DNB(Nephro)MNAMS.,
Nephrologist,
MIOT Hospitals,
Chennai-89.

A DISSERTATION SUBMITTED TO THE TAMIL NADU DR. M.G.R MEDICAL

UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR DEGREE OF MASTER OF

SCIENCE IN NURSING

APRIL 2012

DECLARATION

I hereby declare that the present dissertation entitled "**IMPACT OF HYPERTENSION ON RENAL DISEASE AMONG RENAL PATIENTS"** is the outcome of the original research work undertaken and carried out by me, under the guidance of Prof. S. Ani Grace Kalaimathi M.Sc (N)., PGDNA., DQA., Ph.D., Principal MIOT College of Nursing, Chennai and Prof. N.Jayasri, M.Sc., M.Phil., Ph.D., Vice principal and Head of the Department of Medical Surgical Nursing, MIOT College of Nursing, Chennai. I also declare that the material of this has not formed in any way, the basis for the award of any degree or diploma in this university or other universities.

Rengalakshmi.A.

II year M.Sc (N).

ACKNOWLEDGEMENT

I wish to express my heartfelt gratitude to my God Almighty for the abundant blessings, health and confidence throughout the dissertation.

I express my genuine gratitude to the Managing Trustee of MIOT educational institutions for giving me an opportunity to conduct the study.

I owe my whole hearted gratitude and sincere thanks to Prof. S. Ani Grace Kalaimathi, M.Sc(N).,PGDNA., DQA.,Ph.D, Principal and Research Guide, MIOT College of Nursing for her valuable guidance, innovative suggestions, constant motivation and extreme patience which enabled me to complete the dissertation successfully.

I am privileged to express my sincere gratitude and thanks to Prof. N. Jayasri, M.Sc (N)., M.Phil.,Ph.D, Vice Principal, Nurse guide and Head of the department of Medical–Surgical Nursing, MIOT College of Nursing for her valuable guidance, motivation, suggestions, extreme patience throughout the study.

I extend my thanks to Dr.Ganesh Prasad,DNB(Genmed) DNB(Nephro) MNAMS., Nephrologist, MIOT Hospitals, Chennai for his constant support, valuable suggestions, corrections and guidance for this study.

My heartfelt gratitude to Mrs. Kavitha, M.Sc (N)., Reader, Ms.Kanimozhi, M.Sc(N)., Lecturer, Department of Medical-Surgical Nursing,MIOT College of Nursing for their valuable guidance, suggestion, motivation, timely help and support throughout the study.

I am grateful to Prof. Fabiola. M.Dhanaraj, M.Sc (N)., M.A.,M.Phil., Head of the Department of Mental Health Nursing and Coordinator, MIOT College of

Nursing, Chennai for her constant motivation, timely help and valuable suggestions for completing the study.

I thank all teaching faculty in MIOT College of Nursing, for their timely advice, guidance and encouragement.

I am grateful to Prof. Dr. Antony Amalraj, M.Sc., Ph.D., Professor in Bio statistics, for his help in statistical analysis.

I thank all the participants in this study for their interest and cooperation.

I thank our Librarian Mrs. Buvaneshwari, M.L.I.S., for her constant help in assisting me in reviewing the books for my literature during the course of my work.

I express my whole hearted gratitude and sincere thanks to my lovable parent Mr. Ayyalusamy and Mrs. Subbulakshmi for their constant support and motivation and I express my heartfelt thanks to my beloved brothers and sisters for their constant support, encouragement, motivation in all the stages of my work which enabled me to complete this study.

With my deep gratitude, I acknowledge my friends and classmates, seniors for their concern and contribution.

I wish to express my deep sense of gratitude to all those who have contributed directly or indirectly for the successful completion of this dissertation.

ABSTRACT

A retrospective study to assess the impact of hypertension on renal disease among renal patients in MIOT Hospitals, Chennai. The conceptual framework of the study was developed on the basis of epidemiological triad. The study variable was hypertension with renal disease patients attending renal outpatient department MIOT Hospitals, Chennai. A quantitative research approach with retrospective design was used to achieve the objectives of the study. The study was conducted in MIOT Hospitals, Chennai, with a sample size of 150 hypertension with renal disease patients. The samples were selected through purposive sampling method for prevalence of hypertension among renal patients and convenient sampling method for impact of hypertension on renal disease. The investigator used a demographic variable proforma and with clinical data and checklist on impact of hypertension on renal disease among renal patients to collect the data. The data collection tools were validated and reliability was established. The data was collected by using an interview method and from patient clinical file.

The prevalence of Hypertension among renal patients is 451 hypertensive patients out of 1544 renal patients. The prevalence rate was 292.1 per 1000 renal patients. The demographic characteristics revealed that 36.7% of the patients were in the age group above 60 years and 64% of patients were male. It was noted that 62.7% of patients had moderate impact, 31.3% of patients had mild impact and 6% of patients had severe impact.78.2% of patients were not aware that hypertension leads to renal disease, 52% of patients have not consulted nephrologists for elevated urea

and creatinine, majority of them did not follow regular annual check-up(78%), 68% of patients did not take antihypertensive drugs regularly. There is a significant association between the checklist score and demographic variables like gender, occupation and educational status ($P< 0.05$).

The results indicated that hypertension has impact on renal disease. The increased blood pressure in renal disease also cause major cardiac problems among renal patients. So proper control of blood pressure and early detection can prevent major problem and increase the lifespan of hypertensive patients.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

`CHAPTER I

INTRODUCTION

"Prevention is better than the cure"

The bones can break, the muscle can atrophy, the glands can loaf, even the brain go into sleep without immediate danger for the survival, but if the kidney fails neither, the bone, the muscle, the gland nor the brain could carry on its function. This statement underlies the importance of the kidney in our life.

Hypertension is sometimes called "the silent killer " because the people who have it are often are symptom free. In the national survey , 32% of the population who had pressures exceeding 140/90 mm Hg, were unaware of their elevated blood pressure. It should be monitored at regular intervals because hypertension is a silent killer which require careful attention.

An adult more than the age of 20 years who has a systolic blood pressure of equal or more than 140 mm Hg and a diastolic blood pressure of equal or more than 90 mm Hg when recorded on two occasions in a relaxed sitting posture is considered hypertensive.

Blood pressure should be measured in every adult. Hypertension is often asymptomatic. Currently persons with a blood pressure greater than 140/90 mm Hg are hypertensive; most with a systolic blood pressure of 120-140 mm Hg are said to be pre-hypertensive. The latter should be monitored because they are likely to develop hypertension.

Chronic kidney diseases are one of the most important chronic non-communicable disease epidemics in the world, including India. Chronic kidney diseases have emerged as a serious public health problem worldwide. Health education is the cornerstone for prevention of chronic kidney disease. Public perception of chronic kidney disease and knowledge about kidney diseases is poor in India.

Hypertension causes problems for many organs in the body, including the kidneys. Kidney problems caused by high blood pressure occur often in persons who have undetected, untreated, or poorly controlled hypertension.

Many body systems are at serious risk due to the extreme rise in blood pressure. Multiple organs of the body, including the brain, the eyes, the blood vessels, the heart, and the kidneys may be damaged. The blood vessels of the kidney are highly susceptible to damage caused by high blood pressure, and kidney failure may develop and lead to permanent damage requiring long term dialysis.

Kidneys play a key role in keeping a person's blood pressure in a healthy range, and blood pressure, in turn, can affect the health of the kidneys. High blood pressure makes the heart work harder, and over the time, can damage the blood vessels throughout the body. If the blood vessels in the kidneys are damaged, they may stop removing wastes and extra fluid from the body. The extra fluid in the blood vessels may then raise blood pressure even more. This is a dangerous cycle.

Chronic kidney disease is a long-term condition where the kidneys do not work as it is required to. The diseased kidneys do not usually produce any symptoms

until it has reached an advanced stage. It is usually detected at earlier stages by variations in the blood and urine tests only. So if it is detected early, the progression can be stopped or the disease can be reversed.

High blood pressure is one of the leading cause of kidney failure. Every year, high blood pressure leads to more than 25,000 new cases of chronic kidney disease in the United States.

Hypertension is a very common finding, particularly as people become older; it can also be the first sign of kidney disease. High blood pressure can also itself be a cause of kidney disease, so people who have high blood pressure for a number of years, particularly if it is difficult to control with medications, need to be repeatedly screened for evidence of kidney damage.

Early chronic kidney disease does not cause symptoms. One should routinely evaluate asymptomatic persons who are at high risk for chronic kidney disease. Adults, especially those in the high-risk group with strong family history of diabetes, the obese and those with hypertension should be routinely screened for hypertension, diabetes and kidney disease.

The kidney is both a cause and victim of hypertension. High blood pressure is a key pathogenic factor that contributes to deterioration of kidney function. Presence of kidney disease is a common and underappreciated pre-existing medical cause of resistant hypertension. Therefore, treatment of hypertension has become the most important intervention in the management of all forms of chronic kidney disease.

Nationally, 26 million adults have chronic kidney disease, more than 367,000 people depend on dialysis for survival; 87,000 people are waiting for a Kidney transplant, and 75 percent of adults on dialysis cannot attend work or school, the spokesman said.

Chronic kidney disease is emerging as an important cause for morbidity and mortality. Worldwide, the major cause for chronic kidney disease is hypertension. In a country like India, where the per capita income is low, only 1% of the population can afford renal replacement therapy. The global response to this challenge is prevention, early detection, and treatment.

Nephrologists are highlighting the important role that chronic kidney disease plays in morbidity and mortality from cardiovascular disease, and they are stressing the importance of properly treating hypertension, diabetes, and dyslipidemia in patients with impaired renal function.

Hypertension in developing countries is often detected for the first time when the patients present with end organ damage. This observation may be related to the low level of awareness of hypertension. Just 8 % of the populations in Nigeria when compared to about 70 % in the US aware of their blood pressure status.

Need for the Study

Hypertension remains one of the leading causes for renal failure and is clearly a major contributor to accelerated loss of the renal function in the setting of other forms of the renal disease.

Ashok.L, et al.(2011) stated the relationship between kidneys and hypertension. The kidneys are the regulators of blood pressure in normal body. When a person has renal hypertension, that hypertensive state itself induces histopathological changes of nephrosclerosis due to the hypertension and not due to the original renal disease. This nephrosclerosis adds to the renal damage produced by the renal disease and accelerates the process of azotemia. As a therapeutic maneuver, tight control of blood pressure helps to decelerate the process of azotemia and retards the progression of the renal failure towards end-stage.

Levey.A.S,et al.(2011) sated the relationship between hypertension and kidney disease. No matter it is the kidney disease cause hypertension or just the reverse; blood pressure should be strictly controlled. First, choose those medicines that can control the blood pressure and at the same time can protect the kidneys. The blood pressure should be controlled at 130/80mm Hg. When the patients have severe proteinuria, the blood pressure should be controlled lower. Hypertension has become the most important cause of Uremia. There are not obvious symptoms for Hypertension so many patients will not know it until a test is done. Hypertension will lead to angiosclerosis of the heart and coronary heart disease, renal arteriosclerosis and renal artery stenosis, which will make hypertension more stubborn, that's why hypertension can't be effectively controlled.

Giusseppe Remuzzi, et al.(2008) stated that lack of awareness means that opportunities are being lost to prevent not only renal but cardiovascular diseases. Most important, kidney disease first needs to be identified, because of its silent nature, and the "simplest way to do this is to perform a dipstick test for proteinuria or to look at serum creatinine and see if there are any abnormalities."

Matthew.T, et al.(2008) on reviewing all the recent literatures with regard to chronic kidney disease, concluded: "The treatment of hypertension is the mainstay of management to slow the progression of renal disease and reduce cardiovascular risk.

John fee Hally, et al.(2005) said that the government to Standardize the diagnostic testing for serum creatinine (an important measure of kidney function). To the people of the country he said, test yourselves periodically for albumin in the urine.

Agarwal.R, et al.(2009) stated that hypertension is very common in patients with chronic kidney disease; its prevalence increases with glomerular filtration rate and reaches an estimated 86% in patients End Stage Renal disease. In the third national health and nutrition examination survey, 70% of those with an elevated serum creatinine had hypertension. Sodium and water retention with progressive decrease in glomerular filtration rate is thought to be etiologically related to the high prevalence of hypertension.

Serum creatinine and blood urea levels are sensitive markers of kidney dysfunction. Measurement of serum creatinine and estimating the glomerular filtration rate is the recommended approach for early detection.

The second approach to detect kidney dysfunction is by urinalysis in high-risk patients. The tests should include a urinalysis and if needed a urine-to-protein/creatinine ratio measurement. In hypertensive and diabetic patients whom there is no Proteinuria, micro albuminuria is the earliest manifestation of kidney disease.

The exact prevalence of chronic kidney disease in India is not clear in the absence of regular national registry data and provided only a small observational series or rely on reports from personal experience, but the quality of data is quiet uneven. There are only three population based studies in India commenting on the magnitude of chronic kidney disease.

Nickolas.T.L, et al.(2004) conducted the study on awareness of kidney disease in the US population. The prevalence of end-stage renal disease in the US population has been predicted to increase by 48% during the next decade. Early identification and treatment of chronic kidney disease is necessary to delay progression from chronic kidney disease to end stage renal disease. In participants with chronic kidney disease, 40.5% of patients with stage 1, 29.3% of patients with stage 2, 22.0% of patients with stage 3, and 44.5% of patients with stage 4 chronic kidney disease were aware of their kidney disease, respectively. In multivariate regression modeling, lack of awareness was significantly associated with sex, race-ethnicity distribution, and hypertension. Kidney disease awareness is low among a representative sample of the noninstitutionalized U.S population. Groups at greater risk for kidney disease, such as patients with hypertension, and men, were more likely to be unaware of having

kidney disease. An increased effort to promote kidney disease awareness is needed and probably should target primary care providers involved in the screening process.

In a prevention programme started at community level in Chennai, the reported prevalence is 0.86% in the project population and 1.39% in the control region. The second study is based on Delhi involving 4972 urban patients. The prevalence of chronic renal failure was found to be 0.79 % or 7852 per million populations. The third study perhaps the only longitudinal study to identify the incidence of end stage renal disease based on 572,029 subjects residing in city of Bhopal suggests that the average crude and age adjusted incidence rates of end stage renal disease were 151 and 232 per million populations respectively.

The prevalence of hypertension is high in Kerala, South India. The prevalence of hypertension increases with older age, and high dietary salt intake. The low level of awareness of the problem among the population necessitates urgent medical and social intervention. Improvement of the awareness for hypertension and the early detection and treatment of high blood pressure in the community may reduce the risk of development of chronic kidney diseases.

The need for health care providers to be proactive with regard to the kidney disease by the early detection and treatment, with a view to slowing the progression is being increasingly emphasized worldwide.

Researcher has focused on importance of monitoring the renal function among hypertensive patients.

Statement of the Problem

A retrospective study to assess the impact of hypertension on renal disease among renal patients at MIOT Hospitals, Chennai.

Objectives

- To identify the prevalence of hypertension among the renal patients.
- To identify the impact of hypertension on renal disease among renal patients.
- To associate the renal failure checklist score with demographic variables of hypertensive patients with renal failure.

Operational Definitions

Impact

In this study, impact refers to the extent to which the effect of hypertension was the cause for renal disease in hypertensive patient.

Hypertension

In this study, hypertension refers to persistent elevation of systolic blood pressure above 140mmhg and diastolic blood pressure above 90mmhg for prolonged period.

Renal Disease

In this study, renal disease refers to increased level of blood urea nitrogen and decreased glomerular filtration rate.

Renal patients

In this study, renal patients refers to the patient having renal disease and attending nephrology outpatient department.

Assumptions

- Hypertension is one of the risk factor for renal disease.
- Hypertensive patients have an increased chance of developing renal disease.

Delimitations

- The study period was limited to 6 weeks only.
- The study was delimited to only hypertensive patients with the renal disease and hypertensive patients attending nephrology outpatient department.

Projected Outcome

The study will increase the understanding about the impact of the hypertension on renal disease. Based upon the results of the study, the investigator can recommend the health care provider to advice annual renal function test for hypertensive patients to prevent the kidney disease at the earlier stage.

CHAPTER II

REVIEW OF LITERATURE

The review of literature refers to the activities involved in identifying and searching for information on the topic and developing and understanding the state of knowledge on the topic.

-Polit and Hungler[2004]

Literature review was done on prevalence of hypertension on renal disease, impact of hypertension on renal disease by means of extensive survey of books, journals, internet and media. Research as well as non-research literatures were reviewed to understanding and gain insight into the problem under study. It is gradually prepared to put a research problem in context or to identify gaps and weakness in prior studies so as to justify new investigations. An extensive review of relevant literature was conducted to generate an insight and collect maximum information for laying down the foundation of the study.

The review of literature has been divided under the following headings:

Section I: Literature related to prevalence of renal failure among the patient with hypertension.

Section II: Literature related to impact of hypertension among the chronic kidney disease patients.

Section I

Literature related to prevalence of renal failure among the patient with hypertension

Information on the incidence and outcome of chronic kidney disease in India is not available. Unlike elsewhere in the world, there is no end-stage renal disease registry in India.

Vimala.A, et al.(2009) conducted a large community-based study in South Delhi. The findings of the study revealed that the prevalence of chronic renal failure among adults was found to be 7850/million. The prevalence of chronic renal failure is much higher in the western societies where the prevalence is estimated to be 47000/million.

Emeka.A.Nwankwo, et al.(2006) conducted the study on prevalence of impaired kidney function in hospitalized hypertensive patients in Maiduguri. He has compared 54 males and 31 females patients with impaired kidney function with that of 37 male and 63 female patients with normal kidney function. The findings of the study revealed that among 50 hypertensive patients 27 % of study population had impaired kidney function. The mean serum creatinine in the study group was 289.2 µmol/l with a standard deviation of 309.88 µmol/l. Elevated serum creatinine greater than 135 micromoles per liter was seen in 85 or 45.5 % of the study population.

Mittal.S.K, et al.(2004) conducted the study on prevalence of hypertension in a hemodialysis population in Winthrop University Hospital, Mineola, New York. The samples include 190 patients. The pre/post mid-week dialysis blood pressure readings

of 190 patients (64+/-14.1 years, 53% males, 77% whites) were evaluated over a 3 months period. Of the 190 patients, 146 (76.8%) were hypertensive. 117 out of 146 hypertensive patients (80.1%) had persistent elevation of blood pressure despite being on one or more antihypertensive medications.39% of patients were on calcium channel blockers,27% being on beta-blockers and 14% on angiotensin converting enzyme inhibitors. There was no correlation between the number of medications used and the control of hypertension. The hypertension was a frequent finding in hemodialysis population and it was controlled in only 19.9% of hypertensive patients. Most of this hypertension was pre-dialysis systolic. There was a significant correlation between fluid loss during dialysis and lowering of blood pressure.

Buckalew.V, et al.(2002) conducted a cohort study on prevalence of hypertension in chronic renal disease. In the study of the 1,795 patient with renal disease had adequately been on antihypertensive medications and were also assessed of their glomerular filtration rate and nutritional status. A total of 1,494 patients in this cohort were classified as hypertensive (83%) and the remainder (301 patients) as nonhypertensive. Ninety-one percent of the hypertensive subjects were on treatment, 54% being controlled to a blood pressure of less than or equal to 140/90 mm Hg. Compared with normotensive subjects, hypertensive patients were older (51.2 +/- 12.7 years v 46.6 +/- 13.1 years [mean +/- SD]), had a higher body mass index (BMI; 27.5 +/- 4.7 kg/m(2) v 25.4 +/- 4.2 kg/m^2), and had a lower GFR (37.8 +/- 19.6 ml/min/1.73 m^2 v 50.1 +/- 25 ml/min/1.73 m^2). All these differences were significant ($P < 0.01$). The prevalence of hypertension was significantly higher for men than for women (86% v 80%; $P = 0.001$).

Crews.J, et al.(2002) conducted the study on prevalence of renal disease among U.S.adults. The findings revealed that 13.4% of people who have normal blood pressure have chronic kidney disease. Among those with prehypertensive, the prevalence was 17.3%; those with undiagnosed hypertension, the prevalence was 22.0%; and those with diagnosed hypertension, the prevalence was 27.4%. Among adults in the United States, 1 in 4 has hypertension and 1 in 8 has chronic kidney disease as on the year 2000.

The National Kidney and Urologic Disease Information, a federal agency (2001), estimates that about 4.5% of people over age 20 have chronic kidney disease, as indicated by tests that measure kidney function. Hypertension is the second leading cause of chronic kidney disease. It accounts for between 27% and 30% of all new cases of chronic kidney disease.

Natalia Ridao, et al.(2001) conducted the study on prevalence of hypertension on renal disease in hospital General Universitario Gregorio Maranon, Madrid. The samples included in the study were 1921 patients with different nephropathies. The result revealed that the prevalence of hypertension in the total group of patients with renal diseases was 60.5%, but this prevalence varied widely depending upon the type of underlying nephropathy. The prevalence of hypertension was practically universal in patients with renal vascular disease (93%) and in patients with established diabetic nephropathy (87%), and 74% of the patients with polycystic kidney disease, 63% of the patients with chronic pyelonephritis and 54% of the patients diagnosed with glomerulonephritis were Hypertensive. The prevalence of hypertension in patients with renal insufficiency (80%) is significantly higher than that in patients without

renal insufficiency (43% P<0.001). There is a high prevalence of hypertension in renal patients, which depends on the type of nephropathy and the degree of renal failure.

Christine Adamec, et al.(2001) stated that renal failure is caused primarily by chronic high blood pressure over many years. Hypertension is the second major cause of end stage renal disease after diabetes and is responsible for 25–30% of all reported cases. In addition, many people with diabetes also have hypertension, thus high blood pressure plays an even larger role in kidney failure. About 398,000 people were diagnosed with end stage renal disease in 2001. Of these, about 83,000 had hypertension and about 133,000 had diabetes.

Udani, et al.(2000) conducted the study on epidemiology of hypertensive kidney disease, among U.S population. The findings revealed that, identifying the precise prevalence of chronic kidney disease attributable to hypertension is difficult owing to the absence of uniform criteria to establish a diagnosis of hypertensive nephropathy. Despite the increasing prevalence of chronic kidney disease associated hypertension, awareness of hypertension among individuals with chronic kidney disease remains suboptimal and rates of blood pressure control remain poor. Elevated blood pressure levels are associated with chronic kidney disease progression. Hypertension remains a common factor complicating chronic kidney disease. Future investigations identifying early signs of hypertension related chronic kidney disease, increasing awareness of the effects of hypertension in chronic kidney disease and determining optimal therapeutic interventions might help reduce the incidence of hypertensive nephropathy.

Coresh.J, et al.(2000) conducted the study on chronic kidney disease awareness, prevalence, and trends among U.S. adults. The findings of the study revealed that moderately decreased kidney function awareness was much lower among women than men (2.9 +/- 1.6 versus 17.9 +/- 5.9%; P = 0.008).

Section II

Literature related to impact of hypertension among chronic kidney disease patients

Leoncini, (2011) belongs to I-DEMAND (Italy-Developing Education and awareness on microalbuminuria in patients with hypertensive Disease) conducted study on high blood pressure and cardiovascular prevention. The study was designed to assess the prevalence of microalbuminuria and its clinical correlates among Italian hypertensive patients. Samples were included 4151 patients from 87 specialized care centers. The study demonstrated that approximately one-half of the patients had chronic kidney disease, with albuminuria being present in one-quarter of the individuals. The presence of renal abnormalities was more prevalent in patients with concomitant cardiovascular risk factors.

Eskridge.M.S, et al.(2010) conducted study on hypertension and chronic kidney disease, the role of lifestyle modification and medication management among U.S adults. The findings revealed that about one in three U.S. adults has high blood pressure, and despite this high occurrence, only one-third of patients are actually treated for high blood pressure. Reasons for this vary, but can include ineffective patient teaching, lack of understanding, poor lifestyle modifications, sub-optimal

treatment adherence, limited access to health care, or failure of healthcare providers to treat hypertension aggressively. There is a clear relationship between hypertension and chronic kidney disease.

Koichi Hayashi, et al.(2010) conducted the study on impact of renal function on cardiovascular events in elderly hypertensive patients treated with efonidipine in Japan. The patients were randomly assigned to either a strict-treatment group (target systolic blood pressure < 140mm Hg, n=2212) or a mild treatment group (target systolic blood pressure 140 to <160 mm Hg, n=2206), each with efonidipine based regimens. Cardiovascular events were evaluated during the 2-year follow-up period following the prospective randomized open-blinded end-point method. Estimated glomerular filtration rate was elevated throughout the trial period in both the strict treatment group (59.4-62 $mlmin^{-1}$ per $1.73m^2$) and the mild-treatment group (58.8-61.4ml min^{-1} per $1.73m^2$). In conclusion, the rates of decline of renal function and proteinuria constitute critical risk factors for cardiovascular events in elderly hypertensive patients; trends that are enhanced when baseline estimated glomerular filtration rate is diminished. Furthermore, the fact that efonidipine based regimens ameliorate renal function in elderly hypertensive patients with chronic kidney disease may offer novel information on the mechanisms of cardiovascular protection.

Agarwal.R, (2009) conducted the study on blood pressure components and the risk for end-stage renal disease and death in chronic kidney disease. A single-center, prospective cohort study was conducted on 218 veterans with chronic kidney disease (22% black, 4% women, mean age 68 yr, clinic blood pressure 154.1 +/- 25.1/85.2 +/- 13.9 mm Hg, 48% with diabetes). During follow-up of up to 7 yr, 63 patients had end

stage renal disease and 102 patients died. Compared with those with controlled systolic blood pressure (<130 mm Hg), patients with moderate control (130 to 149 mm Hg) had hazard ratio of 3.87 and those with poor control hazard ratio of 9.09 for end stage renal disease. Diastolic blood pressure had no direct ability to predict end stage renal disease. The study concluded that in older patients with chronic kidney disease, systolic blood pressure predicts end stage renal disease and a higher systolic blood pressure and lower diastolic blood pressure predicts all-cause mortality.

Anthony Lee, et al.(2009) stated that, result of untreated high blood pressure is kidney failure. Along with diabetes mellitus, hypertension is a major risk factor for this condition because of the damage to the functional unit of the kidney. Additionally, such kidney disease, in turn, can increase blood pressure. Between 80 to 90percentage of patients with chronic kidney failure have hypertension.

Bakris.G.L, et al.(2009) stated on the world kidney day 2009, that the prevalence of chronic kidney disease continues to increase worldwide as does end stage renal disease. Chronic kidney disease is associated with a significant increase in cardiovascular risk. High blood pressure is a key pathogenic factor that contributes to the deterioration of kidney function. The presence of kidney disease is a common and underappreciated preexisting medical cause of resistant hypertension. Therefore, treatment of Hypertension has become the most important intervention in the management of all forms of chronic kidney disease. For this reason, world kidney day on March 12, 2009 emphasized the role of hypertension in prevention of renal disease.

Marin.R, et al.(2006) conducted the study on blood pressure control in patients with chronic renal insufficiency in Spain by a cross-sectional survey. The study was designed for assessment of control rates of blood pressure, proteinuria and cardiovascular co morbidities in patients with chronic renal insufficiency. 2501 patients with a mean age 64.8 years (65.7% men) were included. The prevalence of previous cardiovascular disease was 55%. A poor blood pressure control was associated with older age, greater proteinuria and higher low-density lipoprotein cholesterol levels. Proteinuria greater than 0.5 g/day was observed in 1209 cases (48.3%). A total of 1899 patients (75.9%) were receiving drugs suppressing the activity of the renin-angiotensin system and 1048 patients (41.9%) were being treated with three or more antihypertensive drugs.

Mogensen.C.E, et al.(2005) conducted the study on vascular impact of anti-hypertensive treatment and renal protection. Hypertension contributes to the progression of renal disease by accelerating structural changes in the kidney, leading to a progressive decline in glomerular filtration rate. Hypertension and micro vascular changes can create a vicious circle, leading to further renal damage and increases in blood pressure. Angiotensin receptor blocking drugs and angiotensin converting enzyme inhibitors have been shown to display renoprotective effects and angiotensin converting enzyme inhibitors reduce the risk of microalbuminuria.

Toto.R.D, et al.(2005) conducted a study on treatment of hypertension in chronic kidney disease. The findings revealed that chronic kidney disease is a major public health problem in the United States. Hypertension is present in more than 80% of patients with chronic kidney disease and contributes to progression of kidney

disease toward end stage as well as to cardiovascular events such as heart attack and stroke. Proteinuria is an important co-morbidity in hypertensive with chronic kidney disease and increase risk of disease progression and cardiovascular events. The National Kidney Foundation clinical practice guidelines recommend a blood pressure goal of less than130 mmHg systolic and less than 80 mmHg diastolic for all chronic kidney disease patients.

Flack.J.M, et al.(2005) stated the prevention of hypertension and its complications in his study elevated blood pressure, particularly systolic blood pressure, has been linked to multiple adverse clinical outcomes including stroke, heart failure, myocardial infarction, renal failure, peripheral vascular disease, retinopathy, dementia, and premature mortality. In hypertensive persons with reduced kidney function and proteinuria, lowering blood pressure with multidrug therapy that is inclusive of pharmacologic modulators of the renin-angiotensin-aldosterone-kinin system is an effective strategy to forestall the progressive loss of kidney function. The totality of data support low therapeutic blood pressure targets for persons with proteinuria >1 gm/dl.

Ryota.L, et al.(2005) stated that in renal parenchyma disease, several studies have stressed the impact of blood pressure and blood pressure-related vascular lesions on renal injury and outcome. However, more powerful independent clinical predictors of the renal outcome are elevated serum creatinine level at presentation and severe proteinuria.

Whitworth.J.A, et al.(2005) conducted the study on progression of renal failure in Annals Academy Of Medicine Singapore. He stated that High blood pressure plays a key role in the progression of renal failure. Hypertension is a common presentation of kidney disease and an almost invariable accompaniment of renal failure. Hypertension is also a major contributor to cardiovascular disease, the major cause of morbidity and mortality in renal failure. Hypertension is both cause and consequence of renal failure. There is strong evidence that hypertension accelerates the progression of experimental renal disease and that control of blood pressure is effective in preventing this progression.

Garcia Cortes.M.J, et al.(2004) conducted the study on hypertension in hemodialysis patients in Andalucia. The study population included 2,789 hypertensive patients enrolled in 46 hemodialysis centers in Andalucia. Hypertensive patients were divided into 4 groups of severity according to the number of antihypertensive drugs received. Comparisons between groups were done. The results show that a hypertension prevalence of 53.8% in comparing clinical data of no hypertensive and hypertensive patients, we observed that patients with hypertension were significantly younger (60.2 +/- 15.6 vs. 63.5 +/- 15 years; P <0.001) and had shorter time on dialysis (months) (56.5 +/- 60 vs. 67.3 +/- 68.2; P = 0.001). Coronary heart disease (P< 0.001) and diabetes (P < 0.001) were associated with hypertension.

De Nicola.L, et al.(2003**)** conducted the study on achievement of target blood pressure levels in chronic kidney disease. He stated that a large body of evidence supports the validity of lowering blood pressure to prevent cardiovascular disease in the general population. This issue becomes even more critical in renal patients

because they carry a greater cardio vascular risk across the entire spectrum of chronic kidney disease. In these patients, achievement of lower blood pressure levels also is fundamental to limit the progression of renal damage, especially in the presence of significant proteinuria.

Domenic.A, et al.(2003) stated that the impact of hypertension on highly vascular organs such as the kidney can be particularly devastating. Irrespective of the genesis of hypertension, the kidney becomes a target organ for hypertension-related damage. If hypertension goes untreated, renal failure progresses, and reaches end-stage.

Hall.J.E, et al.(2003) conducted study on impact of the obesity epidemic on hypertension and renal disease. He stated that excess weight gain is a major cause of increased blood pressure in most patients with essential hypertension, and also greatly increases the risk for renal disease. Obesity raises blood pressure by increasing renal tubular reabsorption, impairing pressure natriuresis, causing volume expansion due to activation of the sympathetic nervous system and renin-angiotensin system, and by physical compression of the kidneys, especially when visceral obesity is present. With prolonged obesity, there may be a gradual loss of nephron function that worsens with time and exacerbates hypertension. Weight reduction is an essential first step in the management of obesity hypertension and renal disease.

Ljutic.D, et al.(2003) conducted the study on arterial hypertension in the progression of non-diabetic glomerular diseases. Glomerular hypertension results in glomerular capillary wall stretch, endothelial damage and a rise in protein glomerular

filtration. One of the most important factors in the progression of Chronic Renal Failure is activation of the rennin-angiotensin system. Its effect is not only elevated blood pressure, but also the promotion of cell proliferation, inflammation and matrix accumulation.

Ronald.M, et al (2002) stated that hypertension can be related to chronic kidney disease in a number of ways. Studies show that the risk of having hypertension in chronic kidney disease patients is increased with advancing age, higher body weight. Increased activity of the sympathetic nervous system, causing an adrenaline surge. Hormonal mechanisms also play an important role in the link between chronic kidney disease and hypertension, primarily via the renin-angiotensin system; it contributes hypertension by stimulating salt retention and constriction of blood vessels. Para thyroid hormone that may raise blood pressure and has increased quantities with advancing chronic kidney disease. To slow the progression of chronic kidney disease and reduce the risk of heart disease controlling the blood pressure is important. Patients that lose a significant amount of protein in the urine are risk for progressive kidney disease and heart disease.

Preston.R,et al.(2002) stated that most patients with renal parenchymal hypertension have sodium-sensitive hypertension, and, consequently, sodium restriction and loop diuretics constitute the initial steps in effective antihypertensive therapy in patients with renal disease. The loop diuretics (furosemide, ethacrynic acid, bumetanide, torsemide) are used for the management of extra cellular fluid volume hypertension in patients with renal disease because thiazide diuretics are generally not effective in patients with serum creatinine values above 2.0 mg/dl or creatinine

clearances below 30 ml/min. The Joint National Committee VI recommends the use of angiotensin-converting enzyme inhibitors in patients with hypertension and chronic renal disease to control hypertension and to slow progressive renal failure. Antihypertensive treatment with angiotensin-converting enzyme inhibitors may favorably alter renal hemodynamics, thereby slowing the progression of renal dysfunction.

Jafer.T.H, et al.(2001) conducted the study on proteinuria as a modifiable risk factor for the progression of non-diabetic renal disease. Data were analyzed from 1860 patients enrolled in 11 randomized controlled trials comparing the effect of antihypertensive regimens, including angiotensin converting enzyme inhibitors to regimens not including angiotensin converting enzyme inhibitors on the progression of non-diabetic renal disease. Mean baseline urine protein excretion was 1.8 (0.94) gm/day. After controlling for the current level of urine protein excretion, the beneficial effect of angiotensin converting enzyme inhibitors remained significant [relative risk for angioensin converting enzyme inhibitors vs. control was 0.66 (0.52 to 0.83)], but there was no significant interaction between the beneficial effect of angiotensin converting enzyme inhibitors and the baseline level of urine protein excretion.

Fujise.Y**,** et al.(2001) conducted the study on Comparison of the prognosis of hypertension associated with chronic glomerulonephritis with that of essential hypertension. The study findings reveals that prognosis of renal hypertensive was remarkably worse when it was compared with the prognosis of essential hypertensive. More than 80% of the essential hypertensive was still alive after ten years, while the

mortality rate of the renal hypertensive after 5 years was only 20%. In renal hypertension the survival rate was extremely low when the patients had high diastolic pressure, severe cardiac and cerebrovascular complication. The prognosis of essential hypertension was poor in the order of severe cerebrovascular complication, renal complication and cardiac complication. The patients with both renal and essential hypertension showed greater survival rate when the blood pressure was much more reduced by bed rest or antihypertensive drugs

Lengani. A**,** et al.(2000) conducted the retrospective study on characteristics of renal disease in hypertensive morbidities in adults in Burkina Faso. 342 Hypertensive adults were included in the study (200 men, 142 women, mean age: 50.6 +/- 13.8 years).The aim to determine the importance of renal disease in hypertensive (Blood pressure > 160/95 mmHg. Assessments were systematically done; blood pressure was 183.6 +/- 36.4/113.3 +/- 23.1 mm Hg. Total morbidity concerned 316 patients (92.4%). Cardiovascular complications have been diagnosed in 236 patients (69%) with a mean age of 51.6 +/- 14 y, neurologic complications in 85 patients (24.9%, mean age: 55.7 +/- 12) and renal disease in 123 patients (36%; mean age: 44.7 +/- 14.5 years). Patients under 40 years of age have had higher 24 hours proteinuria than other patients (1.05 +/- 1.17 g (n: 51) vs. 0.45 +/- 0.68 (n: 170), $P < 0.01$). Chronic renal failure occurred in youngest patients (n: 72, age: 39.7 +/- 13.4 vs. 53.7 +/- 12.3; $P < 0.01$) with a most high prevalence in rural (31.6%) than urban patients (15.8%; $P < 0.01$). In conclusion, data suggest that renal disease will be common cause of hypertension.

Tesar.V, et al.(2000) stated the hypertension in diseases of the kidney. Patients with renal hypertension are threatened by cardiovascular complications of hypertension even more frequently than patients with essential hypertension. Hypertension is moreover an important factor in the progression of renal insufficiency. In the pathogenesis of renal hypertension an important role is played by sodium and fluid retention and activation of the renin-angiotensin system. Progression of rental insufficiency can be retarded only by more strict control of hypertension by angiotensin converting enzyme.

CONCEPTUAL FRAMEWORK

The conceptual framework deals with the inter- related concept that are assessable together in some rational schemes by virtue of their response to the common theme. Polit & Beck(2004).

This chapter deals with conceptual framework adopted for this study. A conceptual framework is comprised of interrelated concepts of the natural phenomena. Epidemiology is the basis for disease prevention and health promotion.

Epidemiological information plays an important role in public health objectives aimed at promoting physical, mental, social well-being in the population. Epidemiological findings contribute to preventing and controlling disease by providing information that leads to informed public health policy and planning as well as individual health decision making.

During the present century, medical and social progresses have reduced the impact of infectious diseases on society and have increased public health concern with non-infectious chronic diseases. Difficulties have been encountered in applying the concept of agent to many of the chronic diseases.

Salt or sodium in the diet is also shown as possibly playing a role in causing Hypertension, although the evidence for the generality of this factor is far less certain than the public and most health professionals seem to believe. Higher blood pressure stresses the heart work too, can damage blood vessels throughout the body. If the blood vessels in the kidneys are damaged, they may stop removing wastes and extra fluid from the body. High blood pressure is one of the leading causes of kidney

failure. By looking at the next level above this, however, we find hypertension, which is a possible point for intervention. We can treat hypertension with an array of highly effective drugs.

Epidemiological triad helps to harvest the valid and precise information about the causes, preventions, and treatments for disease. The triad consists of an external agent, a host and an environment in which the host and agent are brought together causing the disease to occur in the host.

The triangle has three corners:

- Agent that causes the disease
- Host or organism harbouring the disease
- Environment or those external factors that allow or cause disease

The mission is to break at least one of the sides of the triangle, disrupting the connection between the environment, the host and the agent and interrupting the continuation of disease.

The use of a settings framework is useful for conceptualizing and planning interventions and actions. Within each setting, a broad view is needed, and the epidemiological triad helps identify strategies for action.

Agent

Hypertension caused by various factors including stress, sedentary lifestyle, aging, heart disease, kidney disease, vascular disease. Chronic hypertension leads on to permanent damage on kidney.

In the kidneys there are changes both in glomeruli as well as end arteries, where in there is hyaline deposition, basement membrane thickening and narrowing of the capillary lumina which leads on to chronic kidney disease, owing to constant proteinuria, hematuria.

Host

Host factors are modifiable and non-modifiable. Modifiable risk factors includes life style modification, sedentary habits, individual attitudes, poor perception of blood pressure control, non compliance and is regular follow up, irregular monitoring the blood parameters like urea, creatinine.

Non-modifiable factors includes age, gender, and genetics.

Environment

Environment provides the 'structure' within which people live and as such are powerful determinants of behaviours. Environment factors are internal and external.

Internal environment includes stress, hormonal changes, hereditary.

External environment includes physical, economical status, socio cultural factors, non compliance of regular annual check-up, and non-compliance of drug therapy.

The components of the epidemiological triad are interconnected, but intervention strategies differ somewhat for each aspect of the triad. Host-related strategies tend to be educational (one-on-one education, behavioral interventions, public education) or medical (pharmaceutical, surgical). Vector-related solutions often are based in technology or engineering or otherwise modify the carrier or agent.

Environment-related solutions can be physical (changing structures and availability of goods, services, amenities), economic (influencing cost of goods and services and incomes to pay for them), policy oriented (altering the rules), and socio cultural (influencing attitudes, beliefs, and perceptions).

Internal environment are stress, family history, hormonal changes. External environment are low socio economic status, non compliance of drug therapy, regular annual check-up

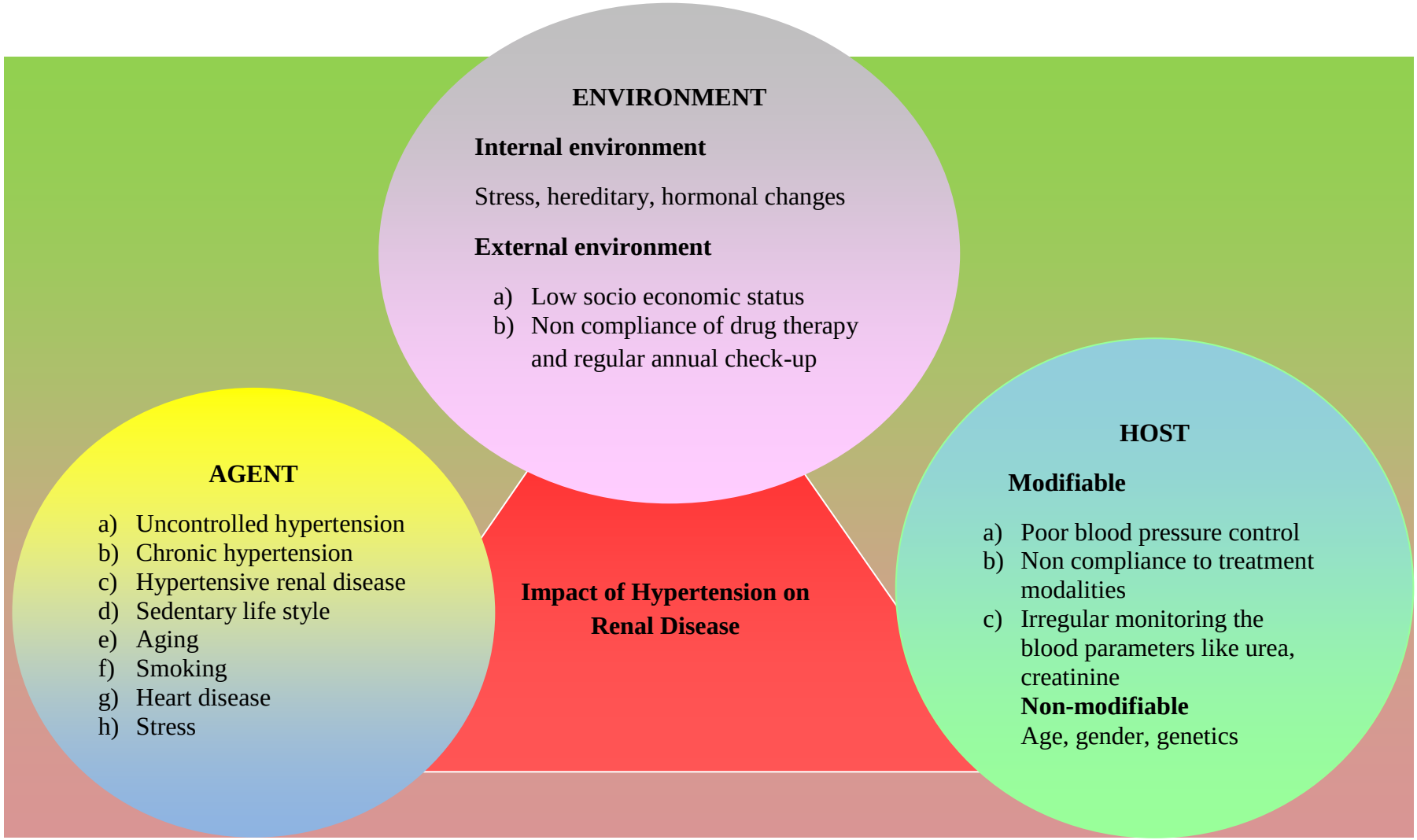


Figure: 1 Conceptual Framework based on Epidemiological Triad

CHAPTER III

RESEARCH METHODOLOGY

Methodology of research refers to the investigation of the ways of obtaining, organizing and analyzing data. Methodological study addresses the development in validation and evaluation of research tools and methods. -Polit [2004]

This chapter deals with research approach, research design, setting, population, sampling, sample size, sampling technique, exclusion criteria, inclusion criteria, development and description of tool, validity, reliability, pilot study, data collection procedure, data analysis and protection of human rights.

The aims of retrospective study to assess the impact of hypertension on renal disease among renal patients in MIOT Hospital, Chennai.

Research Approach

The research approach used for this study was quantitative approach.

Research Design

The retrospective research design was used for this study.

Setting

The study was conducted in the nephrology outpatient department in the MIOT multispecialty Hospitals, Chennai. This hospital houses 450 beds and has sophisticated equipments. Nephrology outpatient department works between 9am to 5pm from Monday to Saturday. Each day around 40-60 patients visit the nephrology outpatient department. In that renal failure with hypertension were many.

Population

The population of this study was renal patients attending the nephrology outpatient department in MIOT Hospitals, Chennai.

Sample

The sample was 150 patients with hypertension with renal failure in MIOT Hospitals, Chennai.

Sample Size

The sample size was 150 patients with hypertension and renal disease of both the genders.

Sampling Technique

Sampling technique used for finding the prevalence of hypertension among renal disease patients was purposive sampling method and convenient sampling method was used to assess the impact of hypertension.

Inclusion Criteria

- Renal patients attending nephrology outpatient department.
- Patients who can understand Tamil and English.

Exclusion Criteria

- Patients not willing to participate in the study.
- Renal patients with any other chronic illness.

Data Collection Tool

Description of the Tool

Part A

Demographic profile of the patient. It includes age, sex, marital status, occupation, religion, educational status, diet pattern, place of residence, nationality, type of family, leisure time activity, habits, habits of regular exercise.

Part B

Section I: Clinical data includes, year of hypertension, year of renal disease, present and past blood pressure recording, symptoms, signs, cardiovascular system, respiratory system, gastrointestinal systems, central nervous system, lab investigation, impression, medical and non-medical management.

Section II: Hypertension and Renal Disease related Checklist. The checklist with 15 questions to assess the impact of hypertension among renal disease patients.

Scoring and interpretation:

Question no 1,2,9,10,12a,12b,12c12d,12e,12f,13 scores for 'Yes'-0; 'No'-1.

Question no 3,4,5,6a,6b,6c,6d,6e,6f,7,8,11,14,15 scores for 'Yes'-1; 'No'-0

Total score is 25; the score was interpreted as follows,

- Mild impact - <50%
- Moderate impact - 51-75%
- Severe impact - 76-100%

Validity

Validity of the tool was obtained from experts in the field of Nursing and Nephrology.

Reliability

The reliability of the tool was established through pilot study by inter rater testing method, the obtained score was r= 0.98.

Pilot Study

In order to check the feasibility, reliability and practicability of the study, a pilot study was conducted after permission due for a period of one week from 31.03.2011 to 5.04.2011. The study was conducted on 20 patients with hypertension and renal disease in Nephrology outpatient department at MIOT Hospitals, Chennai. The data was collected by the investigator using a clinical data and checklist. The result proved that the tool was valid and reliable.

Data Collection Procedure

The data was collected for a period of 6 weeks from 31.05.2011to 09.07.2011. The data was collected from hypertensive with renal disease patients in MIOT Hospitals, Chennai. The permission to conduct the study was obtained from the institution and from the Head of the Department. The study population was renal disease patients attending the nephrology outpatient department. Time schedule for the study was planned to collect the data from the hypertensive with renal disease patients. The investigator initially established rapport with the hypertensive with renal

disease patients and the purpose of the study was explained. The informed consent was obtained from the hypertensive with renal disease patients. The prevalence of hypertension in renal disease patients was identified with patient's clinical records by purposive sampling method. Through purposive sampling method the investigator identified 451 hypertensive patients in renal disease. Out of these identified patients the investigator selected 150 patients diagnosed to have hypertensive with renal disease by convenient sampling method. Interview method was used to ask question in demographic variables and checklist. Clinical data was identified from patient's old records and clinical file. The data collection was done from 31.05.2011to 09.07.2011(6 days per week) as per the following schedule:

Weeks	**Number of samples**
1st Week	22
2nd Week	29
3rd Week	27
4th Week	24
5th Week	25
6th Week	23

Human Rights Protection

The pilot and main study were conducted only after approval of the research proposal by the college of nursing and the Institutional Ethical Committee. Also permission was obtained from the concerned Head of the Department to conduct the study. Informed consent was obtained from all the subjects who participated in the study.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

Analysis is defined as the method of organizing data in such a way that the research questions can be answered. Interpretation is the process of making sense of the results and of examining the simplification of the findings with in a broader context. Polit & Beck(2004).

This chapter deals with analysis and interpretation of the findings. The data were collected from the hypertension with renal disease patients to assess the prevalence of hypertension among renal disease patient and impact of hypertension on renal disease.

The study findings are presented in the following sections.

Section I : Prevalence rate of hypertension among renal disease patient.

Section II : Distribution of sample according to the demographic characteristics.

Section III : Distribution of impact of hypertension on renal disease.

Section IV : Association between demographic variables and checklist score of hypertensive patients with renal disease.

Section I

This section presents prevalence of hypertension among renal disease patients.

Table 1: Prevalence of hypertension among renal disease patients attending nephrology outpatient department.

N=1544.

Weeks	Total no of patients attended the outpatient department.	Prevalence of hypertension among renal patients	Percentage
1st Week	173	55	31.79
2nd Week	328	98	29.88
3 rd Week	272	76	27.9
4th Week	318	89	28.0
5th Week	224	61	27.2
6th Week	229	72	31.4
Total	**1544**	**451**	**29.21%**

The above table shows that 1544 patients attended nephrology outpatient department during data collection period. Among them 451 patients had hypertension. Prevalence rate was estimated to be 292.1 per 1000 renal patients.

Sections II

This section describes the demographic variables of hypertension with renal disease patients.

Table 2: Distribution of demographic variables among renal patients.

n=150

S.No	Demographic variables	Frequency	Percentage
1.	**Age in years**		
	a) < 20 yrs	0	0.0
	b) 21 – 30 yrs	6	4.0
	c) 31 - 40 yrs	18	12.0
	d) 41 – 50 yrs	31	20.7
	e) 51 – 60 yrs	40	26.7
	f) > 60 yrs	55	36.7
2.	**Gender**		
	a) Male	96	64.0
	b) Female	54	36.0
3.	**Marital status**		
	a) Married	141	94.0
	b) Unmarried	5	3.3
	c) Widow/Widower	4	2.7
4.	**Occupational status**		
	a) Government employee	29	19.3
	b) Non Government employee	34	22.7
	c) Business	28	18.7
	d) Agriculture	7	4.7
	e) Unemployed	7	4.7
	f) Homemaker	45	30.0

5.	**Religion**		
	a) Hindu	134	89.3
	b) Muslim	6	4.0
	c) Christian	10	6.7
6.	**Educational status**		
	a) Illiterate	8	5.3
	b) Primary	6	4.0
	c) Secondary school	15	10.0
	d) Higher Secondary	49	32.7
	e) Diploma	10	6.7
	f) Graduate & above	62	41.3
7.	**Diet pattern**		
	a) Vegetarian	53	35.3
	b) Non Vegetarian	97	64.7
8.	**Residence**		
	a) Urban	125	16.7
	b) Rural	25	
9.	**Type of family**		
	a) Nuclear family	104	69.3
	b) Joint family	46	30.7
10.	**Leisure time activity**		
	a) Watching TV	147	98.0
	b) Gardening	3	2.0
	c) Reading books/newspaper	60	40.0

11.	**Habits**		
	a) Smoking	48	32.0
	b) Alcoholism	25	16.7
	c) Drug abuse	0	0.0
	d) Tobacco	4	2.7
12.	**Habits of regular exercise**		
	a) Yoga	3	2
	b) Meditation	4	3
	c) Physical exercise	12	8

Table 2 shows that 36.1% of the patients were above 61years of age , 64% were male, 94% of them were married; 41.3% were graduate, 64.7% were non-vegetarian, most of them(69.3%) were nuclear family,32% of them were smokers, majority of the patients were not following the regular exercise.

Section III

This section presents the impact of hypertension on renal disease.

Figure 2: Mean blood pressure value before and after diagnosis of renal disease among hypertensive patients.

n= 150

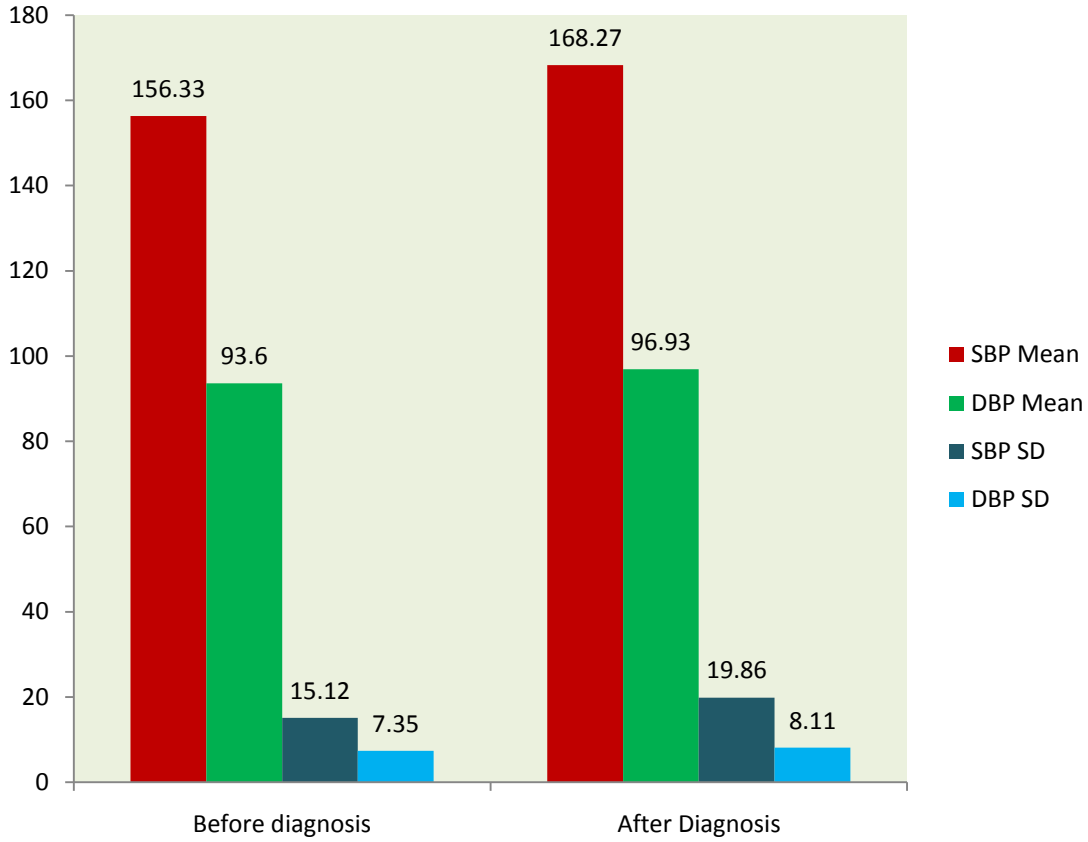


Figure 2 shows that before diagnosis renal disease, mean systolic and diastolic blood pressure respectively were 156.33 and 93.60 mm Hg; after diagnosing renal disease mean systolic and diastolic blood pressure respectively were 168.27 and 96.93.This shows that after renal damage the blood pressure is elevated.

Table 3: Changes of mean blood pressure before and after diagnosing renal disease among hypertensive patients.

n=150

Blood pressure	Changes in blood pressure		Paired t test and P value
	Mean	Standard Deviation	
Systolic blood pressure	11.93	20.94	t = 6.979, P = 0.000 ***
Diastolic blood pressure	3.33	9.60	t = 4.252, P = 0.000 ***

Note: *** - P<0.001 Level of significant

Table 3 shows that changes of blood pressure before and after diagnosing renal disease, systolic blood pressure mean was 11.93, standard deviation is 20.94.Diastolic blood pressure mean was 3.33 and standard deviation was 9.60. Which was significant at P<0.001.

Table 4: Distribution of sign variables among renal patients.

n= 150

S.No	Sign variables	Frequency	Percentage
1.	**Skin turgor**		
	a) Normal	125	83.3
	b) Abnormal	25	16.7
2.	**Pallor**		
	a) Present	114	76.0
	b) Absent	36	24.0
3.	**Jaundice**		
	a) Present	14	9.3
	b) Absent	136	90.7
4.	**Edema**		
	a) Present	111	74.0
	b) Absent	39	26.0
5.	**Cardiovascular system**		
	A)Heart sound		
	a) Normal	145	96.7
	b) Abnormal	5	3.3
	B)Murmur		
	a) Present	10	6.7
	b) Absent	140	93.3

6.	**Respiratory system**		
	a) Rate	18	12.0
	b) Rhonchi	5	3.3
	c) Wheeze	20	13.3
	d) Any other	1	0.7
7.	**Gastrointestinal system**		
	a) Abdominal distension	22	14.7
	b) Ascites	11	7.3
	c) Visceromegaly	14	9.3
8.	**Central nervous system**		
	a) Less Power of muscle strength	3	2.0
	b) Abnormal reflexes	2	1.3

Table 4 shows that 74% of patients had edema, 7.3% of patients had ascites.

Table 5: Frequency distribution of symptoms among hypertensive patients with renal disease.

n= 150

S.No	Demographic variables	Frequency	Percentage
1.	Generalized weakness	137	91.3
2.	Headache	51	34.0
3.	Tiredness	105	70.0
4.	Irritability	8	5.3
5.	Loss of concentration	6	4.0
6.	Giddiness	67	44.7
7.	Syncope	15	10.0
8.	Puffiness of face	60	40.0
9.	Swelling of legs	112	74.7
10.	Dyspnea	83	55.3
11.	Cough	32	21.3
12.	Loss of appetite	126	84.0
13.	Nausea & vomiting	101	67.3
14.	Abnormal bowel movement	109	72.7
15.	Reduced urine output	83	55.3
16.	Frothy urine	22	14.7

17.	Hematuria	5	3.3
18.	Epistaxis	2	1.3

Table 5 shows that some of the patient are volume overloaded in that 40% of patient had facial swelling, 74.7% of patient had lib swelling.53.3% patient had reduced urine output, patient had urinary abnormalities in the form of 14.7% frothy urine and hematuria 3.7%.

Table 6: Association between systolic blood pressure with selected symptoms among renal patients.

n = 150

S.No	Selected symptoms	Symptoms response and systolic blood pressure				Independent t-test and P – value
		No		Yes		
		Mean blood pressure	Stantard deviation (n)	Mean blood pressure	Standard deviation (n)	
1.	Generalized weakness	162.3	17.4 (13)	168.8	20.0 (137)	t = 1.133 P = 0.259
2.	Headache	165.9	18.1 (99)	172.7	22.4 (51)	t = 2.033 P = 0.047 *
3.	Puffiness of face	167.1	18.1 (90)	170.0	22.2 (60)	t = 0.872 P = 0.385
4.	Swelling of legs	165.2	16.6 (38)	169.3	20.8 (112)	t = 1.080 P = 0.282
5.	Dyspnea	164.3	15.9 (67)	171.4	22.1 (83)	t = 2.211 P = 0.029 *

Note: * - P<0.05 Level of Significant.

Table 6 reveals that there is a significant association between the systolic blood pressure, headache (P=0.047) and dyspnea (P=0.029).

Table 7: Association between diastolic blood pressure with selected symptoms among renal patients.

n =150

S.No	Selected symptoms	Symptoms response and diastolic blood pressure				Independent t test and P – value
		No		Yes		
		Mean blood pressure	Standard deviation	Mean blood pressure	Standard deviation (n)	
1.	Generalized Weakness	92.3	4.4 (13)	93.7	7.6 (137)	t = 0.662 P = 0.509
2.	Headache	92.5	7.7 (99)	95.7	6.1 (51)	t = 2.539 P = 0.012 *
3.	Puffiness of face	93.7	7.4 (90)	93.5	7.3 (60)	t = 0.136 P = 0.892
4.	Swelling of legs	93.2	7.0 (38)	93.7	7.5 (112)	t = 0.428 P = 0.669
5.	Dyspnea	93.4	6.6 (67)	93.7	7.9 (83)	t = 0.249 P = 0.803

Note: * - P<0.05 Level of Significant.

Table 7 shows that there is a significant association between the diastolic blood pressure and headache (P=0.012).

Table 8: Descriptive statistics of clinical variables among renal patients.

n=150

S.No	Blood pressure	Mean	Standard deviation	Range	
				Minimum	Maximum
1.	Temperature	98.51	0.25	97.8	100.0
2.	Pulse Rate	84.12	5.62	62	102
3.	Respiratory Rate	24.00	5.78	20	30
4.	Systolic blood pressure	168.27	19.86	140	250
5.	Diastolic blood pressure	96.93	8.11	80	130
6.	Weight	62.52	10.67	36.4	91.6
7.	Height	160.80	7.99	143.0	182.0
8.	BMI	24.14	3.30	15.8	31.9

Table 8 shows that among all patients the weight ranges from 36.4 to 91.6 kgs and body mass index ranges from 15.8 to 31.9. Overweight patients had elevated blood pressure.

Table 9: Descriptive statistics of lab investigation variables among renal patients.

n =150

S.No	Lab investigation variables	Mean	Standard deviation	Range	
				Minimum	Maximum
1.	Hemoglobin	10.08	1.90	4.9	14.7
2.	Packed cell volume	33.38	26.50	10.9	44.9
3.	White blood count	8145.99	2582.51	5260	18100
4.	Blood urea	90.13	32.91	42	191
5.	Serum creatinine	5.05	2.89	1.4	15.7
6.	Blood sugar	99.67	14.70	70	161
7.	Serum potassium	5.10	0.74	3.7	7.5
8.	Serum sodium	139.47	3.85	126	151
9.	Serum Calcium	8.84	0.71	5.7	10.3
10.	Serum phosphorus	4.90	1.12	3.1	9.3
11.	Serum chloride	105.53	5.44	90	119
12.	Serum bicarbonate	19.42	2.78	12	24
13.	Uric acid	6.69	1.76	3.6	13.2
14.	Serum total protein	7.04	0.59	5.4	8.2
15.	Serum albumin	3.77	0.44	2.5	4.9

16.	Serum globulin	3.27	0.50	2.2	4.6
17.	Serum total cholesterol	175.87	36.44	102	292

Table 9 shows that patients have hemoglobin range from 4.9 to 14.7gm/dl, blood urea range from42 to 191 mg/dl, serum creatinine ranges from 1.4to 15.7 mg/dl, serum potassium ranges from 3.7 to 7.5 meq/l, and serum sodium ranges from 126-151 meq/l.

Table 10: Correlation between lab investigations with blood pressure among renal patients.

n =150

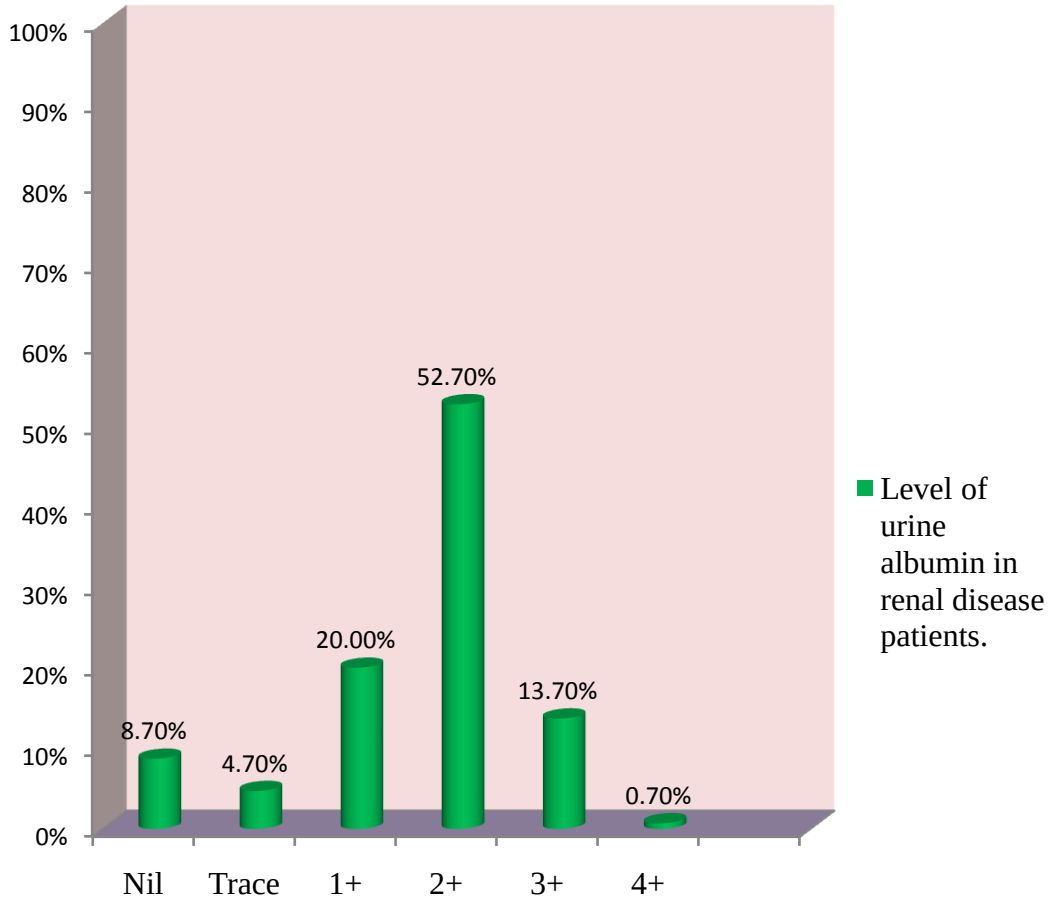
S.No	Lab investigation	Blood pressure			
		Systolic blood pressure		Diastolic blood pressure	
		r – value	P – value	r – value	P – value
1.	Hemoglobin	-0.180	0.028*	0.050	0.540
2.	Packed cell volume	-0.180	0.028*	0.050	0.540
3.	Urea	0.021	0.798	-0.064	0.439
4.	Creatinine	0.193	0.018 *	0.098	0.233
5.	Blood Sugar	0.010	0.901	-0.149	0.068
6.	Potassium	-0.063	0.442	0.095	0.248
7.	Sodium	-0.140	0.087	-0.117	0.155
8.	Calcium	-0.250	0.002 **	-0.102	0.213
9.	Phosphorus	0.0	1.0	-0.046	0.576
10.	Uric acid	-0.182	0.026 *	-0.099	0.229
11.	Total Protein	-0.180	0.028 *	-0.150	0.067

Note: * - P<0.05 Level of Significant.

Table 10 results that there is a significant association between the blood pressure and hemoglobin (0.028), packed cell volume (0.028), creatinine (0.018), calcium (0.002), uric acid (0.028), and total protein (0.028). There is a positive correlation between the blood pressure and creatinine (0.193). This implies that patient with uncontrolled hypertension will have high risk of elevated serum creatinine that is uncontrolled hypertension have proponderness in progression of renal failure.

Figure 3: Distribution of urine test variables among renal patients

n =150



The figure 3 shows that 52.7% of patient have urine albumin 2+, 8.7% of patients have no albuminuria. Patients those lose a significant amount of protein in the urine are at somewhat higher risk, both for progression of kidney disease and heart disease. Currently, guidelines support a goal blood pressure less than 130/80 mm Hg for all patients with chronic kidney disease and less than 125/75mm Hg for those patients losing more than one gram of protein in the urine per day.

Table 11: Distribution of radiological and imaging investigations among renal patients. n=150

S.No	Radiological and imaging	Frequency	Percentage
1.	**Ultrasound – kidney size**		
	a) Normal	18	12.0
	b) Enlarged	7	4.7
	c) Shrunken	125	83.3
2.	**Ultrasound – Liver**		
	a) Enlarged	39	26.0
	b) Not Enlarged	109	72.7
3.	**Electrocardiogram**		
	a) Left ventricular hypertrophy	62	41.3
	b) Arrhythmias	5	3.3
4.	**Echocardiogram**		
	a) Left ventricular hypertrophy	58	38.7
5.	**Chest x-ray cardiac enlargement**		
	a) Present	37	24.7
	b) Not Present	113	75.3

Table 11 shows that in ultrasound 83.3% of patients had shrunken kidney, 24.7% of patient had criteria qualifying for cardiac enlargement chest X-ray; of which 41.3% of patients had left ventricular hypertrophy in electrocardiogram continued 38.7% of patients had left ventricular hypertrophy in echocardiogram. 24.7% of patients had cardiac enlargement in chest X-ray. In ultrasound 83.3% of patients had shrunken kidney. This implies that hypertensive patients in renal disease have more chances of cardiac problems.

Table 12: Distribution of treatment – non medical and medical management among renal patients.

n =150

S.No	Management	Frequency	Percentage
1.	**Stress management technique**		
	a) Yoga	3	2.0
	b) Meditation	3	2.0
2.	**Fluid restriction per day**		
	a) 500 ml/day	6	4.0
	b) 1 lit/day	10	6.7
	c) 1.5 lit/day	116	77.3
	d) 2 lit/day	18	12.0
3.	**Salt restricted diet**		
	a) No salt	8	5.3
	b) 1 gm	55	36.7
	c) 2 gm	80	53.3
	d) 3 gm	7	4.4
4.	**Weight reduction technique**		
	a) Exercise	31	20.7
	b) Diet	149	99.3
5.	**Life style modification**		
	a) Smoking cessation	149	99.3
	b) Avoid alcohol intake	150	100.0

	Medical Management :		
6.	**Antihypertensive drugs:**		
	a) Alpha-1 adrenoceptor blocker	31	20.7
	b) Alpha-2 agonist	25	16.7
	c) Calcium channel blockers	128	85.3
	d) Angiotensin II receptor antagonist	14	9.3
	e) Beta blockers	87	58.0
7.	**Calcium and vitamin D supplements**		
	a) Yes	130	86.7
	b) No	20	13.3
8.	**Iron supplements and erythropoietin drugs**		
	a) Yes	86	57.3
	b) No	64	42.7
9.	**Bicarbonate supplements**		
	a) Yes	116	77.3
	b) No	34	22.7
10.	**Regular follow up**		
	a) Yes	147	98.0
	b) No	3	2.0

Table 12 shows that most of the patients (85.3%) take calcium channel blockers. Many of them were taking calcium (86.7%), Iron (57.3%), and bicarbonate (77.3%) supplements. Almost all patients come for regular follow-up to renal outpatient department.

Table 13: Descriptive statistics on check list for hypertension with renal disease score among renal patients.

n=150

S.No	Mean	Standard deviation	Range	
			Minimum	Maximum
1.	13.98	3.15	6	21

Table 13 shows that minimum range in checklist score was 6 and maximum score was 21.

Table 14: Distribution of check list responses.

n=150

Checklist questions	Yes		No	
	Frequency	Percentage	Frequency	Percentage
1.	44	29.3	106	70.6
2.	32	21.3	118	78.6
3.	39	26.0	111	74.0
4.	76	50.7	74	49.3
5.	119	79.3	31	20.7
6a.	57	38.0	93	62.0
6b.	128	85.3	22	14.7
6c.	48	32.0	102	68.0
6d.	52	41.3	78	58.7
6e.	85	56.7	65	43.3
6f.	58	38.7	92	61.3
7.	112	74.7	38	25.3
8.	132	88.0	18	12.0
9.	72	48.0	78	52.0
10.	33	22.0	117	78.0

11.	139	92.7	11	7.3
12a.	49	32.7	101	67.3
12b.	5	3.3	145	96.6
12c.	20	13.3	130	86.7
12d.	111	74.0	39	26.0
12e.	118	78.7	32	21.3
12f.	34	22.7	116	77.3
13.	82	54.7	68	54.3
14.	43	28.7	107	71.3
15.	12	8.0	138	92.0

Table 14 shows that before diagnosing renal disease 70.8% of patients were not aware about hypertension and kidney disease, 78.2% of patients were not aware that hypertension leads to renal disease, 74.7% of patients had presence of albumin in urine, 88% of patients had elevated urea and creatinine, 52% of patients had not consulted nephrologists for elevated urea and creatinine, 78% of patients did not come for regular annual checkup, 68% patients did not take antihypertensive drugs regularly.

Figure 4: Distribution of impact of hypertension on renal disease.

n =150

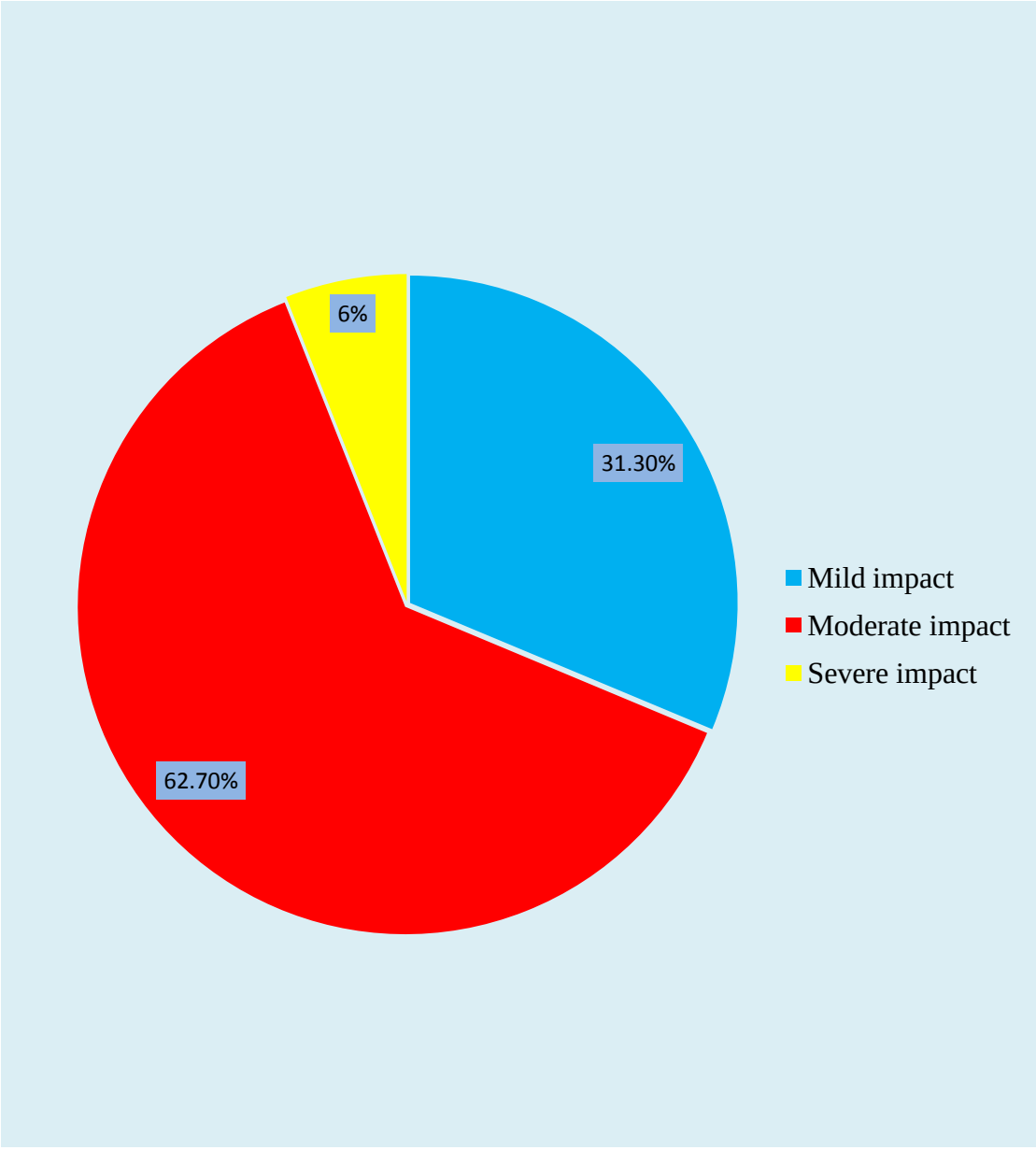


Figure 4 shows that 62.7% of patients had moderate impact, 31.3% of patients had mild impact, and 6% of patients had severe impact of hypertension on renal disease.

Figure 5: Distribution of impression on hypertension among renal patients.

n=150

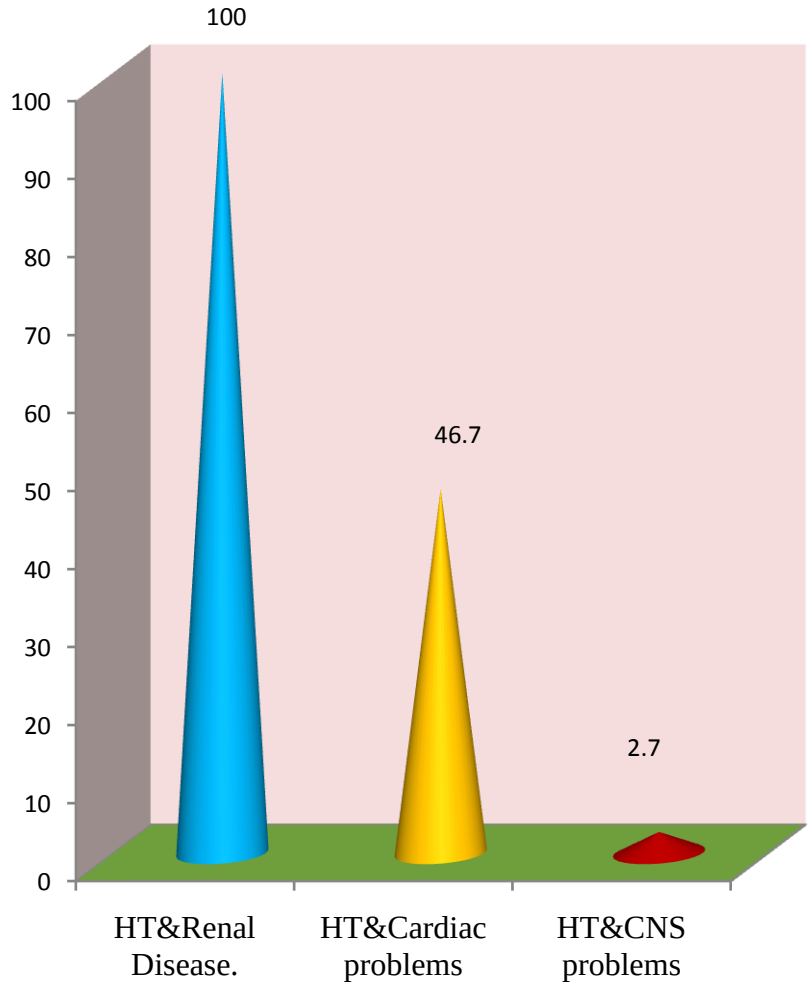


Figure 5 shows that all patients had hypertension with renal disease, 46.7% of patients had hypertension with cardiac problems. The result implies hypertension has more impact on renal disease as well as in cardiac problems. Renal patients should control their blood pressure to prevent cardiac problems.

Section IV

This section deals the association between demographic variables with checklist score.

Table 15: Association between level of check list score and demographic variables among hypertensive patients with renal disease. n =150

S.No	Demographic variables	Mild impact (<50%)		Moderately impact (51-75%)		Severe impact (>75%)		Chi square test and P value
		No	%	No	%	No	%	
1.	**Age in years**							
	b) 21 – 30 yrs	1	16.7	5	83.3	0	0.0	χ 2=8.751
	c) 31 - 40 yrs	5	27.8	12	66.7	1	5.6	d.f. = 8
	d) 41 – 50 yrs	9	29.0	21	67.7	1	3.2	P=0.364
	e) 51 – 60 yrs	9	22.5	26	65.0	5	12.5	
	f) > 60 yrs	23	41.8	30	54.5	2	3.6	
2.	**Gender**							χ 2 = 14.251
	a) Male	21	21.9	66	68.8	9	9.4	d.f= 2
	b) Female	26	48.1	28	51.9	0	0.0	P=0.001 ***
3.	**Marital status**							
	a) Married	44	31.2	88	62.4	9	6.4	χ 2 =0.85
	b) Unmarried	2	40.0	3	60.0	0	0.0	d.f. = 4
	c) Widow	1	25.0	3	75.0	0	0.0	P=0.932

4.	**Occupation**							
	a) Govt. employee	12	41.4	16	55.2	1	3.4	$\chi 2$ =19.28
	b)Non Govt. employee	8	23.5	23	67.6	3	8.8	d.f. = 10
	c) Business	4	14.3	21	75.0	3	10.7	P=0.037 *
	d) Agriculture	0	0.0	6	85.7	1	14.3	
	e) Unemployed	2	28.6	5	71.4	0	0.0	
	f) Homemaker	21	46.7	23	51.1	1	2.2	
5.	**Religion**							
	a) Hindu	43	32.1	82	61.2	9	6.7	$\chi 2$ =2.058
	b) Muslim	2	33.3	4	66.7	0	0.0	d.f. = 4
	c) Christian	2	20.0	8	80.0	0	0.0	P=0.725
6.	**Educational status**							
	a) Illiterate	3	37.5	3	37.5	2	25.0	
	b) Primary	1	16.7	5	83.3	0	0.0	χ =18.877
	c) Secondary school	3	20.0	11	73.3	1	6.7	d.f. = 10
	d) Higher Secondary	16	32.7	29	59.2	4	8.2	P=0.042 *
	e) Diploma	1	10.0	7	70.0	2	20.0	
	f) Graduate & above	23	37.1	39	62.9	0	0.0	
7.	**Diet pattern**							
	a) Vegetarian	21	39.6	31	58.5	1	1.9	$\chi 2$ =4.336
	b) Non Vegetarian	26	26.8	63	64.9	8	8.2	d.f. = 2
								P=0.114
8.	**Residence**							
	a) Urban	43	34.4	75	60.0	7	5.6	$\chi 2$= 3.302
	b) Rural	4	16.0	19	76.0	2	8.0	d.f. = 2
								P=0.192

9.	**Type of family**							χ 2= 2.206
	a) Nuclear family	30	28.8	69	66.3	5	4.8	d.f= 2
	b) Joint family	17	37.0	25	54.3	4	8.7	P=0.332
11.	**Leisure time activity**							
	a) Watching TV							
	b) Gardening	45	30.6	94	63.9	8	5.4	χ 2 = 3.99
	c) Reading	0	0.0	3	100.0	0	0.0	d.f. = 2
	books/newspapers	19	31.7	39	65.0	2	3.3	P=0.136
12.	**Habits**							
	a) Smoking	13	27.1	29	60.4	6	12.5	χ 2 = 2.55,
	b) Alcoholism	4	16.0	14	56.0	7	28.0	d.f. = 2
	d) Tobacco	1	25.0	3	75.0	0	0.0	P=0.279

Note: * - P<0.05, Level of significant.

Table 15 results shows that there is a significant association between checklist score with gender (p =0.001), occupation (p =0.014) and educational status (p-0.042). There is no association between other demographic variables and checklist score.

CHAPTER V

DISCUSSION

The aim of the retrospective study was to assess the prevalence of hypertension among renal patients and the impact of hypertension among renal patients. Sampling method used for finding the prevalence of hypertension among renal disease patients was purposive sampling method and convenient sampling method was used to assess the impact of hypertension.

Table (2) shows that 36.1%t of the patients were above 61years of age , 64% were male, majority of them were married (94%); 41.3% were graduate, 64.7% were non-vegetarian, 69.3% of them were nuclear family, 32% of them were smokers, majority of the patients were not following the regular exercise. It shows that hypertension and renal disease are more common among male patients.

The first objective of the study was to identify the prevalence of the Hypertension among the renal patient

Table (1) shows that 1544 patients attended nephrology outpatient department during data collection period. Among them 451 patients had hypertension. Prevalence rate was estimated to be 292.1 per 1000 renal patients.

The findings are consistent with the study done by Natalia Ridao et.al (2001) on prevalence of hypertension in renal disease in Hospital General Universitario Gregorio Maranon, Madrid. The study findings revealed that the prevalence of hypertension in 1921 patients with different nephropathies. The prevalence of

hypertension in the total group of patients with renal diseases was 60.5%, but this prevalence varied widely depending upon the type of underlying nephropathy. The prevalence of hypertension was practically universal in patients with renal vascular disease (93%) and in patients with established diabetic nephropathy (87%), and 74% of the patients with polycystic kidney disease, 63% of the patients with chronic pyelonephritis and 54% of the patients diagnosed with glomerulonephritis were hypertensive. The prevalence of hypertension in patients with renal insufficiency (80%) is significantly higher than that in patients without renal insufficiency (43% $P<0.001$). There is a high prevalence of hypertension in renal patients, which depends on the type of nephropathy and the degree of renal failure.

The second objective of the study was to identify the impact of the Hypertension on renal disease among patient.

In the year between 1996-2000, 22.7% of patients were diagnosed as hypertension, 30% of patients were diagnosed as hypertension in the year between 2001-2006. 62% of patients were diagnosed as renal disease in the year between 2006-2010.

Figure (2) shows that, before diagnosis renal disease, mean systolic and diastolic blood pressure respectively were 156.33 and 93.60 mm Hg; after diagnosing renal disease mean systolic and diastolic blood pressure respectively were 168.27 and 96.93 mm Hg. This shows that after renal damage the blood pressure is elevated.

Table (3) shows that blood pressure before and after diagnosing renal disease. The change in blood pressure comparing before and after diagnosing renal disease

shows that systolic blood pressure mean M= 11.93 and standard deviation SD= 20.94. Diastolic blood pressure mean was 3.33 and standard deviation 9.60, t- value was most significant at (P=0.000) level. The blood pressure was significantly increased after diagnosing renal disease.

Table (4) shows that 74% of patients had edema, 7.3% of patients had ascites.

Table (5) shows that some of the patient are volume overloaded in that 40% of patient had facial swelling, 74.7% of patient had lib swelling. 53.3% patient had reduced urine output, patient had urinary abnormalities in the form of 14.7% frothy urine and hematuria 3.7%.

Table (6) results revealed that there is a significant association between the systolic blood pressure and headache (P=0.047) and also association between the dyspnea (P=0.029).

Table (7) shows that there is a significant association between the diastolic blood pressure and headache (P=0.012).

Table (8) shows that, among all patients the weight ranges from 36.4 to 91.6 kgs and body mass index ranges from 15.8 to 31.9. Overweight patients had elevated blood pressure.

Table (9) shows that patients have hemoglobin range from 4.9 to 14.7gm/dl, blood urea range from42 to 191 mg/dl, serum creatinine ranges from 1.4to 15.7 mg/dl, serum potassium ranges from 3.7 to 7.5 meq/l, and serum sodium ranges from 126-151 meq/l.

Table (10) shows that there is a significant association between the blood pressure and hemoglobin (0.028), packed cell volume (0.028), creatinine (0.018), calcium (0.002), uric acid (0.028), and total protein (0.028). There is a positive correlation between the blood pressure and creatinine (0.193). This implies that patient with uncontrolled hypertension will have high risk of elevated serum creatinine that is uncontrolled hypertension have proponderness in progression of renal failure.

The figure (3) shows that 52.7% of patient have urine albumin 2+, 8.7% of patient have no albuminuria. Patients those lose a significant amount of protein in the urine are at risk for progressive kidney disease and heart disease. Currently, guidelines support a goal blood pressure less than 130/80 mm Hg for all patients with chronic kidney disease and less than 125/75mm Hg for those patients losing more than one gram of protein in the urine per day.

Table (11) shows that in ultrasound 83.3% of patients had shrunken kidney, 24.7% of patient had criteria qualifying for cardiac enlargement chest X-ray; of which 41.3% of patients had left ventricular hypertrophy in electrocardiogram continued 38.7% of patients had left ventricular hypertrophy in echocardiogram. 24.7% of patients had cardiac enlargement in chest X-ray. In ultrasound 83.3% of patients had shrunken kidney. This implies that hypertensive patients in renal disease have more chances of cardiac problems.

Table (12) shows that most of the patients (85.3%) take calcium channel blockers. Many of them were taking calcium (86.7%), Iron (57.3%), and bicarbonate (77.3%) supplements. Almost all patients come for regular follow-up to renal

outpatient department. Medications are certainly essential in the treatment of hypertension, especially in chronic kidney disease, but lifestyle changes patients can bring profound impact on their blood pressure and general health.

The Investigator felt that 'kidney disease is common, harmful, and treatable'. Presence of proteinuria has been affecting the adult population. Chronic kidney disease progress to end stage renal disease and renal abnormalities are associated with a many-fold increase in risk of cardiovascular complications and premature cardiovascular deaths. Chronic kidney disease is treatable because there is strong scientific evidence that early detection, altering lifestyle factors and aggressively controlling blood pressure, cannot only slow or halt the progression of patients with chronic kidney disease to end stage renal disease but significantly reduce the incidence of cardiovascular disease.

The conceptual framework formulated for the study was the epidemiological triad model. This model focused that uncontrolled hypertension, chronic hypertension, smoking, stress, non compliance of treatment modalities, non compliance of regular annual checkup, Irregular monitoring the blood parameters like urea, creatinine. Uncontrolled hypertension has more impact in renal disease. Hypertension should be controlled to retard renal disease progression and prevent cardiac problems.

Table (13) shows that minimum range in checklist score was 6 and maximum score was 21.

Table (14) shows that, before diagnosing renal disease 78.2% of patients were not aware that hypertension leads to renal disease, 74.7% of patients had presence of

albumin in urine, 88% of patients had elevated urea and creatinine, 52% of patients had not consulted nephrologists for elevated urea and creatinine, 78% patients did not come for regular annual checkup, 68% patients did not take antihypertensive drugs regularly.

Figure (4) shows that 62.7% of patients had moderate impact, 31.3% of patients had mild impact, and 6% of patients had severe impact of hypertension on renal disease.

Figure (5) shows that all patients had hypertension with renal disease, 46.7% of patients were hypertensive with cardiac problems. The result implies that hypertension has more impact on renal disease as well as in cardiac problems. Renal patients should control their blood pressure to prevent cardiac problems. Lowering blood pressure will reduce the risk of heart disease, which for most patients with chronic kidney disease.

The findings can be supported by Lengani.A**,** et al (2000) conducted the retrospective study on characteristics of renal disease in hypertensive morbidities in adults in Burkina Faso. 342 hypertensive adults were included in the study (200 men, 142 women, mean age: 50.6 +/- 13.8 years).The aim was to determine the importance of renal disease in hypertensive (blood pressure > 160/95 mm Hg) clients. Assessments were systematically done; blood pressure was 183.6 +/- 36.4/113.3 +/- 23.1 mm Hg. Total morbidity concerned 316 patients (92.4%). Cardiovascular complications have been diagnosed in 236 patients (69%) with a mean age of 51.6 +/- 14 years, neurologic complications in 85 patients (24.9%, mean age: 55.7 +/- 12) and renal disease in 123 patients (36%; mean age: 44.7 +/- 14.5 y). Patients under 40 years

of age had higher 24 hours proteinuria than other patients (1.05 +/- 1.17 g (n: 51) vs. 0.45 +/- 0.68 (n: 170), P < 0.01). Chronic renal failure occurred in youngest patients (n: 72, age: 39.7 +/- 13.4 vs. 53.7 +/- 12.3; P < 0.01) with a most high prevalence in rural (31.6%) than urban patients (15.8%; P < 0.01). In conclusion, data suggest that renal disease is a common cause of hypertension.

Investigator felt that kidney disease and end stage renal disease have reached epidemic proportions and are becoming an unbearable burden on the health care resources of the individual and society. The investigator suggested that steps like organizing education program with the help of mass media using different strategies of Information Education Communication (pamphlets, posters, health education, video seminar) can create awareness among the general public with kidney disease, life style modification, control of blood pressure, diabetes etc, training health workers in primary health centers to check for risk factors like hypertension and diabetes, awareness campaigns at work facilities, hospitals, and unions etc.in cities, standardizing labs and make reporting of estimated Glomerular filtration rate mandatory, emphasis in the medical and nursing curriculum and campaign to educate the medical and nursing fraternity about chronic kidney disease are few feasible and cost effective program that can tackle this issue. A public private participation in these programs, with the government taking the lead will further enhance its effectiveness. The only hope is the knowledge that early detection and treatment of chronic kidney disease can dramatically reduce the progression to end stage renal disease and also the risk of cardiovascular disease.

The third objective of the study was to associate the renal failure checklist score with selected demographic variables among hypertensive patients with renal disease.

Table (15) shows that, there is a significant association between checklist score with gender (P =0.001), occupation (P=0.014) and educational status (P=0.042). There is no association between other demographic variables and checklist score.

The findings are consistent with Julie.A, et al (2011) conducted the study on associations among perceived and objective disease knowledge in patients with chronic kidney disease. Survey method used among 399 chronic kidney disease patients. Demographically, the patient median age was 58 years, 47% were women, 77% had stages 3–5chronic kidney disease, and 83% were Caucasians. The overall median score of the perceived knowledge survey was 2.56 (range: 1–4). Older age, male gender, and limited health literacy were associated with lower perceived knowledge. The findings were patients with chronic kidney disease have a limited understanding of their illness.

CHAPTER VI

SUMMARY, CONCLUSION, LIMITATIONS, IMPLICATIONS AND RECOMMENDATIONS

This chapter presents the summary and conclusion of the study, the implication for nursing practice and recommendations for further study.

Summary

A retrospective study to assess the impact of hypertension on renal disease among renal patients at MIOT Hospitals, Chennai, during the year 2011.

The following objectives were

- To identify the prevalence of the hypertension among the renal patients.
- To identify the impact of the hypertension on renal disease among renal patients.
- To associate the renal failure checklist score with demographic variables among hypertensive patients with renal failure.

The conceptual framework of the study was epidemiological triad. A retrospective research design was adopted for this study; the population consisted of renal patients those were attending the renal outpatient department.

Sampling method used for fining the prevalence of hypertension among renal disease patients was purposive sampling method and convenient sampling method was used to assess the impact of hypertension. The tool used for data collection was

clinical data related to renal problem and checklist related to hypertension and renal disease.

Descriptive statistics (frequency, percentage, mean and standard deviation and chi square) and Inferential statistics (paired t test and correlation) were used.

The study findings were as follows

- Prevalence of hypertension among renal patients was 292.1 per 1000.
- Distribution of sample was according to demographic variables.
- Among 150 patients 62.7% of patients had moderately impact, 31.3% of patients had mild impact, and 6% of patients had severe impact. This shows hypertensive patients should have adequate measure to prevent and early diagnosis of renal disease.
- There was a significant association between checklist score with gender (P=0.001), occupation also significant with checklist score (P =0.014) and educational status.

Conclusion

Hypertension is the main cause of renal disease. Most of the people were not aware of impact of hypertension in renal disease and they did not followed standard precaution for prevention of renal problems. Hypertensive patients should follow the regular annual check-up and do urea, creatinine, and urine albumin tests to detect the renal disease in early stage. Regular follow up to nephrologists may prevent death and cardiac problems. Blood pressure usually increase after the diagnosis of renal disease. It leads to cardiac problems, end stage renal disease and stroke. Therefore, blood

pressure control is important among renal disease patients. The investigator fulfilled this role by imparting knowledge through distributing pamphlets to each of the patient of her study.

Limitations

- The study findings were restricted to hypertensive with renal disease patients.
- Data collection period was limited to 6 weeks only hence the long term benefits of the study could not be evaluated.
- The sample size was limited to 150 only which restricts generalization.

Nursing Implications

The findings of the study has implications in different branches of nursing profession i.e., nursing practice, nursing education, nursing research and nursing administration.

Nursing Practice

- Chronic kidney disease is the major health problem in worldwide. Hypertension is the major risk factor for these problems.
- Hypertension is the common problem in India so nurses should create awareness among people that hypertension is the cause and main sign of renal disease. Nurses are responsible to teach the methods of early detection and prevention of renal problems.
- Awareness should be created among the people regarding the impact of hypertension in kidney and heart diseases.

- Nurses should make awareness among the hypertensive people regarding the regular urea, creatinine, urine protein check up and early diagnosis of renal disease and to consult Nephrologists regularly and carry out lab investigations to prevent the progression of renal disease.

Nursing Education

- Students and Nurse Educators can conduct health awareness programme on early detection of renal disease among hypertensive patients.
- Students can conduct mass education program in community regarding regular check up and control of hypertension.
- Nursing curriculum should develop stress compliance for treatment of hypertension and renal disease.

Nursing Administration

- The Nursing Administrator should know about impact of hypertension on renal disease.
- The Nursing Administrator should encourage and provide facilities to conduct health education among the public regarding regular check up and control of hypertension.
- The Nursing Administrator should recommend the government to strictly enforce hypertensive control to prevent renal disease.
- The Nursing Administrator should encourage and conduct research regarding hypertension and renal disease in large population groups.
- The Nursing Administrator should enforce the importance of urine albumin checking among hypertensive patients regularly to detect kidney disease early.

Nursing Research

- This study can be effectively utilized by emerging researchers. Nurse researcher should come forward to conduct research in early detection of renal disease and should create awareness in blood pressure control among renal disease patients.
- The finding of the study may help to expand knowledge upon which further researches can be conducted. Nurse researchers should conduct research among hypertensive patients regarding awareness of renal disease.

Recommendations

- Similar study can also be conducted in community settings.
- Comparative study can be conducted among different age group.
- The study could be replicated in different setting with similar facilities.
- Comparative study can be conducted among people who have diabetes and hypertension.
- A similar study can be conducted by prospective method among hypertensive patient.
- The research can be conducted among people who are taking medications for chronic diseases like diabetes mellitus, hypertension etc.

REFERENCES

Amenos, et al.(2008). Arterial hypertension and dyslipidemia in patients with Chronic Kidney Disease Anti platelet aggregation goal oriented treatment. American Journal of Kidney Disease. Jan; 29 (5): 599-604.

Ashok.L.kirpalani.(2011).Relationship between kidneys and hypertension Asian journal of clinical cardiology. Aug; 14(2): 58-59.

Buckalew.V.M, et al.(2000). Prevalence of hypertension in chronic renal disease. American Journal of Kidney Diseases. Mar 28(6): 811-821.

Bernadet. P,(2002). The effect of angiotensin-converting enzyme inhibitors on the progression of chronic renal failure. Presse Med. Jun 22(4):897-903.

Basavanthappa,B.T.(2007).*Nursing Research. (*2nd edition), Calcutta: Jaypee Publication.

Black.M.J, (2007).*Medical and Surgical Nursing*. (7th edition), New Delhi: Jaypee Publication.

Coresh J et al.(2003).Prevalence of chronic kidney and disease decreased kidney function in the adult in the U.S population: Third National Health and Nutrition Examination Survey. American Journal Kidney Diseases. Apr 41(4):1-12.

Chen.S.C, et al.(2008).Hypertension awareness, treatment, and control in chronic kidney disease. American Journal of Medicine .May 27(2): 121-124.

D'Amico.G, et al.(2000). Natural history of idiopathic IgA nephropathy: role of clinical and histological prognostic factors. American Journal Kidney Disease. Mar36(4):154-158.

De Nicola, et al.(2004).Achievement of target blood pressure levels in chronic kidney Disease. American Journal of Kidney Diseases. Jan 43 (5): 782-795.

Garcia de Vinuesa.S**,** et al.(2001). Effect of strict blood pressure control on proteinuria in renal patients treated with different antihypertensive drugs. Oxford journals medicine Nephrology Dialysis Transplantation. Dec 23(7):161, 78-81.

Giuseppe Maschio, et al.(2003). How good are nephrologists at controlling blood pressure in renal patients. Oxford Journals Medicine Nephrology Dialysis Transplantation. Mar14(9): 2075-2077.

Gupta.S.T, et al.(2001).*Statistical Methods. (*5th edition), New Delhi: SultnanChand Son's Publishers.

Hallan.S.I, et al.(2006). International comparison of the relationship of chroni kidney disease prevalence and ESRD risk. Journal of American society nephrology. Jan 17 (9):2275-2284.

Ikee.R, et al.(2002). Pathological analysis of renal diseases with mild proteinuria. Nippon Jinzo Gakkai Shi (in Japanese).Journal on kidney international. Apr 12(1): 145-152.

Kearney. P.M, et al.(2005). Global burden of hypertension, analysis of worldwide data. American journal of kidney disease. Apr 24(7): 356-362.

Kutyrina.I.M, et al.(2004). Arterial hypertension in chronic glomerulonephritis: treatment efficacy. American journal of kidney disease. Jun 76(9):135-139.

Koichi Hayashi, et al.(2010). Impact of renal function on cardiovascular events in elderly hypertensive patients treated with efinifidine. Retrievedfrom http://www.nature.com/hr/journal/v33/n11/abs/hr2010162a.html.

Leoncini, et al.(2011).High blood pressure and cardiovascular prevention. American journal of kidney disease. Jun 18(2): 788-92.

Lawrence.J, et al.(2010). Blood pressure control in Hypertensive chronic kidney disease. New England Journal of medicine. May 65(9): 75-78.

Lewis, (2007).*Medical Surgical Nursing. (*7th edition), Philadelphia: Mosby's Publishers.

Mani.M.K,(2006).Preventing chronic kidney kidney disease on a shoestring. Kidney international. Jun 70(2): 821-823.

Mahajan.B.k,(2000). *Methods in Biostatistics*. (1st edition), New Delhi: Jaypee Brothers Publishers.

Maschio. G, et al.(2001). Systemic hypertension and antihypertensive agents. Journal of Nephrology. Sep 12(2): 225-227.

McCullough.P.A, et al.(2007). Independent components of chronic kidney disease as a cardiovascular risk state: results from the Kidney Early Evaluation Program .Arch International Medicine. Mar 17(5): 178-182.

Mittal.S.K, et al (2001).Prevalence of hypertension in a hemodialysis population. American Journal of Kidney Disease. Jun43(2):77-82.

Mailloux.L.U, et al.(2001). Hypertension in patients with chronic renal disease. American Journal of Kidney Diseases. Jul 32(5): 80-83.

Nieuwhof.C, Kruytzer.M, et al.(2002).Chronicity index and mesangial IgG deposition are risk factors for hypertension and renal failure in early IgA nephropathy. American Journal of Kidney Disease. Apr 24(5):185-197.

Natalia.R, et al.(2001).Prevalence of Hypertension in Renal Disease. Oxford journals medicine Nephrology Dialysis Transplantation. May 16(2): 70-73.

Nwankwo.E.A, et al.(2006). Prevalence of Impaired Kidney Function in Hospitalized Hypertensive patients in Maiduguri. The internet Journal of internal Medicine. Apr 6(1): 82-86.

Nahas.M.E,(2005).The global challenge of chronic kidney disease. Journal of kidney inttranational. Aug 68(9): 2918-2929.

Polit.F.D et al.(2002). *Nursing Research Principles and Methods*. (5th edition), Philadelphia: Lippincott Publishers.

Osawa.Y, et al,.(2001). Determination of optimal blood pressure for patients with IgA nephropathy based on renal histology. American journal of kidney disease. Mar 34(4):123-127.

Peterso. G.E, et al.(2000). Prevalence and correlates of left ventricular hypertrophy in the African American Study of Kidney Disease Cohort Study. May 89(3): 355-62.

Ryota Ikee,(2006). Impact of Hypertension and Hypertension-Related Vascular Lesion in IgA Nephropathy. American journal of kidney disease. Mar 34(1):139-145.

Rao.M.V,et al.(2004). Hypertension and chronic kidney disease: Kidney Early Evaluation Program and National Health and Nutrition Examination Survey, American Journal of Kidney Disease. Aug 51(2):158-164.

Rauta.V, et al.(2002). Factors associated with progression of IgA nephropathy are related to renal function: a model for estimating risk of progression in mild disease. Clinical Nephrology. May 58(5): 128-134.

Ridao.N, et al.(2001).Prevalence of Hypertension in renal disease. Journal of Nephrol Dial Transplant. Jan 16(4): 12-18.

Smeltzer.C.S et al.(2008).*Medical and Surgical Nursing*.(10th edition),Philadelphia: Lippincott Publishers.

Sundar Rao.P.S,(2001).*Introduction to Biostatistics and Research Methods*.(4th edition), New Delhi: Prentice Hall of India Pvt. Ltd.

Salvetti.A, et al.(2002).Renal protection and antihypertensive drugs - Current status. Drugs. May 57 (5): 665-693.

Sarnak.M.J, et al.(2000). Epidemiology, diagnosis and management of cardiac disease in chronic renal disease Journal of Thrombosis. Jun 10(2): 154-160.

Szeto.C.C, et al.(2001). The natural history of immunoglobulin a nephropathy among patients minimal proteinuria. American Journal of kidney disease. May 21(2): 18-24.

Sarafidis.P.A, Bakris.G.L, et al.(2008). State of hypertension management in the United States: confluence of risk factors and the prevalence of resistant hypertension. Journal of clinical hypertension. Aug 12(5): 52-58.

Tonelli.M, et al.(2002). Barriers to blood pressure control and angiotensin enzyme inhibitor use in Canadian patients with chronic renal insufficiency Nephrology Dialysis Transplantation. Sep 17(8): 132-138.

Vimala.A, et al.(2009).The prevalence, risk factors and awarenesss of hypertension in an urban population of kerala. Journal of kidney disease and transplantation.May 22(1): 685-689.

Whitworth,et al.(2005). Progression of renal failure-The role of Hypertension; Annals Academy of Medicine Singapore. Jun 34(1): 8-15.

White.C, (2002*).Medical Surgical Nursing.(*2nd edition),New York:Delmar Thomson Learning Publishers,899-905.

Yuichiro Yano, et al.(2011). Association between prehypertension and chronic kidney disease in the Japanese general population. Journal of Kidney International.May 22(2): 123-128.

APPENDIX A

Letter seeking permission to conduct the study

From

A.Rengalakshmi
1st year.M.Sc.Nursing,
MIOT College Of Nursing,
Chennai.

Chennai
30- 3-11

Forwarded through

Prof.Mrs.S.Ani Grace Kalaimathi.M.Sc.Nursing.Ph.D,
Principal,
MIOT College Of Nursing,
Chennai.

To

Dr. Rajan Ravichandran, MD, MNAMS,FRCP(EDIN), FRCP (USA)
Director of Nephrology Department,
MIOT Hospitals,
Chennai.

Subject :- Requesting permission to conduct research in Nephrology Out Patient Department

Respected Sir,

As a part of M.Sc.(N) requirement under the fulfillment of Tamil Nadu Dr.M.G.R.Medical University, I am conducting a research on "A study to assess the impact of Hypertension on Renal Disease among renal patients at MIOT Hospitals, Chennai". Kindly I request you to permit me to do my study in your concern

Thanking you,

31/3/2011.

Yours' sincerely,

A. Rengalakshmi

MIOT COLLEGE OF NURSING ★ CHENNAI - 600 089 ★

Dr. N. K. GANESH PRASAD
MBBS., DNB(Med.), DNB(Nephrol.)(AIIMS)
CONSULTANT NEPHROLOGIST AND TRANSPLANT PHYSICIAN
Reg. No. 81532 (TNMC), 84795 (TNMC)
CHENNAI - 600 089

APPENDIX B

Informed consent form

I am **A. Rengalakshmi** , M.Sc.Nursing student studying at MIOT College of Nursing, Chennai.

As a part of my studies a research on "**A Retrospective study to assess the impact of hypertension on renal disease among renal patients" at MIOT Hospitals Chennai.** The findings of the study will be helpful for further information regarding early diagnosis of renal disease and importance of treatment among hypertensive patient.

I hereby seek your consent and co-operation to participate in the study. Please be frank and honest in your response. The information collected will be kept confidentially and anonymity will be maintained.

Signature of the investigator.

I _____, hereby give my consent to participate and undergo the study.

Place:

Date : Signature of the Participant

APPENDIX C

TOOL

PART A

DEMOGRAPHIC VARIABLES OF THE PATIENT

1. Age

a) < 20years

b) 21-30years

c) 31-40years

d) 41-50years

e) 51-60years

f) >61years

2. Gender

a) Male

b) Female

3. Marital status

a) Married

b) Unmarried

c) Widow/ Widowers

4. Occupation

a) Government employee

b) Non -Government employee

c) Business man

d) Agriculture

e) Unemployed

f) Homemaker

5. Religion

a) Hindu

b) Muslim

c) Christian

d) Any other

6. Educational status

a) Illiterate

b) Primary school

c) Secondary school

d) Higher secondary

e) Diploma

f) Graduate and above

7. **Diet pattern**

a) Pure Vegetarian

b) Non-vegetarian

8. Place of residence

a) Urban

b) Rural

9. Type of family

a) Nuclear family

b) Joint family

10. Leisure time activity

a) Watching TV

b) Gardening

c) Reading books/ Newspapers

d) Any other specify

11. Habits

a) Smoking

b) Alcoholism

c) Drug abuse

d) Tobacco

e) Any other

f) None of the above

12. Habit of regular exercise

a) Yoga

b) Meditation

c) Physical exercise

d) Others

PART B---SECTION-1

CLINICAL DATA OF HYPERTENSIVE WITH RENAL DISEASE PATIENT

Year of hypertension:

Year of renal disease:

Blood pressure –Present: Past:

Symptoms of hypertensive patient with renal disease

S.NO	Symptoms	Yes	No
1.	Generalized weakness		
2.	Headache		
3.	Tiredness		
4.	Irritability		
5.	Loss of concentration		
6.	Giddiness		
7.	Syncope		
8.	Puffiness of face		
9.	Swelling of legs		
10.	Dyspnea		
11.	Cough		
12.	Loss of appetite		

13.	Nausea & vomiting
14.	Abnormal bowel movement
15.	Reduced urine output
16.	Frothy urine
17.	Hematuria
18.	Epitaxis
19.	Any other

Signs of hypertensive patient with renal disease

S.NO	Signs
1.	Temperature
2.	Pulse rate
3.	Respiratory rate
4.	Blood pressure-systolic and diastolic
5.	Skin turgor
6.	Pallor
7.	Jaundice
8.	Edema
9.	Weight

10. Height

11. BMI

12. **Cardiovascular system**

    a) Heart sounds

    b) Murmur

    c) Any other

13. **Respiratory system**

    a) Rales

    b) Rhonchi

    c) Wheeze

    d) Any other

14. **Gastrointestinal system**

    a) Abdominal distention

    b) Ascites

    c) Visceromegaly

    d) Bruit renal

15. **Central nervous system**

    a) Power of muscle strength

    b) Reflexes

Lab investigation

S.NO	Investigation	Values
I.	**Blood counts**	
	1) Hemoglobin	
	2) Packed cell volume	
	3) White blood count	
II.	**Bio chemical values**	
	1) Blood urea	
	2) Serum creatinine	
	3) Blood sugar	
	4) Serum potassium	
	5) Serum sodium	
	6) Serum calcium	
	7) Serum phosphorus	
	8) Serum chloride	
	9) Serum bicarbonate	
	10) Serum total protein	
	• Albumin	
	• Globulin	
	11)Serum total cholesterol	

III.	**Urine test**
	1) Urine albumin

Radiological and imaging investigation

S.NO	Radiological and imaging investigation
I.	**Ultrasonography**
	1.kidney size
	a) Normal
	b) Enlarged
	c) Shrunk
	2.Liver
	a) Enlarged
	b) Not enlarged
	3.Ascites
	a) Present
	b) Not present
II.	**Electrocardiogram**
	a) Left ventricular hypertrophy
	b) Arrhythmias
III.	**Echocardiogram**
	a) Left ventricular hypertrophy
	b) Ejection fraction
	c) Pericardial effusion
	d) Left atrium enlargement

IV.	**Chest x-ray**	
	a) Cardiac enlargement	

Impression

S.NO	Impression	Yes	No
1.	Hypertension and renal disease		
2.	Hypertension and cardiac problems		
3.	Hypertension and central nervous system problem		

Treatment

Non-medical management

1) Stress management technique
   a) Yoga
   b) Meditation
2) Fluid restriction per day
   a) 500ml/day
   b) 1lit/day
   c) 1.5lit/day
   d) 2lit/day
3) Salt restricted diet
   a) 1gm
   b) 2gms
   c) 3gms
   d) 4gms
4) Weight reduction technique
   a) Exercise
   b) Diet

5) Life style modification
    a) smoking cessation
    b) Avoid alcohol intake

Medical management

1) Antihypertensive drugs
    a) Alpha-1 adrenoceptor blocker
    b) Alpha-2 agonist
    c) Calcium channel blockers
    d) Angiotensin II receptor antagonist
    e) Beta blockers
2) Calcium supplements
    a) Yes
    b) No
3) Iron supplements and Erythropoietin drugs
    a) Yes
    b) No
4) Bicarbonate supplements
    a) Yes
    b) No
5) Regular follow-up
    a) Yes
    b) No

SECTION II

HYPERTENSION WITH RENAL DISEASE RELATED CHECKLIST

S.NO	QUESTIONS	YES	NO
1.	Do you know about hypertension and kidney disease?		
2.	Do you know that hypertension leads to kidney disease?		
3.	Do any of your family members have kidney disease due to hypertension?		
4.	Do you have any stress in your job before diagnosing hypertension?		
5.	Do you have elevated blood pressure whenever you checked before the diagnoses of kidney disease?		
6.	Do you have any of these signs and symptoms before diagnosing kidney disease? a) Early morning Headache b) Edema(especially in face) c) Less urine output d) Breathing difficulty e) Dry skin f) Weight gain		
7.	Do you have presence of albumin (or) protein in your urine before diagnoses of kidney disease?		
8.	Do you have elevated blood urea and creatinine level before diagnose of kidney disease?		
9.	Have you ever consulted nephrologists for treatment of increased serum urea and creatinine levels?		

10. Do you go for regular annual health check up after diagnosing hypertension disease?

11. Do you think kidney disease can be diagnosed in earlier stage because of regular annual health checkup?

12. Do you follow the below mentioned instructions after diagnosing hypertension?

    a. Salt restricted diet
    b. Fluid restricted diet
    c. Low fat diet
    d. Avoid alcohol intake and caffeine
    e. Quit smoking
    f. Regular weight check-up

13. Do you take antihypertensive drugs regularly before developing kidney disease?

14. Have you ever developed uncontrolled hypertension and admitted or received treatment for it?

15. Have you ever developed hypotension due to antihypertensive drugs?

வினாத்தாள்

பாகம் அ

நோயாளிகளின் சுய விவரம்

1. வயது

அ) 20வயதிற்குள்

ஆ) 21-30 வயது

இ) 31-40 வயது

ஈ) 41-50 வயது

உ) 51-60 வயது

ஊ) >61 வயது

2. பாலினம்

அ) ஆண்

ஆ) பெண்

3. திருமண தகுதி

அ) திருமணமானவர்

ஆ) திருமணமாகதவர்

இ) மனைவியை இழந்தவர்/கணவனை இழந்தவர்

4. வேலை தகுதி

அ) அரசு வேலை

ஆ) தனியார் வேலை

இ) சொந்த தொழில்

ஈ) விவசாயம்

உ) வேலை இல்லாதவர்

ஊ) குடும்பப் பெண்

5. **மதம்**

அ) இந்து

ஆ) முஸ்லீம்

இ) கிறித்துவர்

ஈ) வேறு ஏதாவது மதம்

6. **கல்வி தகுதி**

அ) படிக்காதவர்

ஆ) ஆரம்ப கல்வி

இ) நடுநிலை கல்வி

ஈ) உயர்நிலை கல்வி

உ) டிப்ளமோ

ஊ) இளநிலை அல்லது முதுநிலை

7. **உணவு முறைகள்**

அ) சைவ உணவு முறைகள்

ஆ) அசைவ உணவு முறைகள்

8. **தங்குமிடம்**

அ) நகரம்

ஆ) கிராமம்

9. **குடும்ப வகை**

அ) தனிக் குடும்பம்

ஆ) கூட்டுக் குடும்பம்

10. **ஒய்வு நேர செய்கைகள்**

அ) தொலைக்காட்சி பார்த்தல்

ஆ) தோட்டக்கலை

இ) புத்தகம்/தினசெய்திதாளை படித்தல்

ஈ) மற்ற செய்கைகள்

11. பழக்க முறைகள்

அ) புகைப்பழக்கம்

ஆ) குடிப்பழக்கம்

இ) போதைப்பழக்கம்

ஈ) புகையிலை ப்பழக்கம்

12. முறையான உடற்பயிற்சி பழக்கம்

அ) மூச்சுப்பயற்சி

ஆ) தியானப்பயிற்சி

இ) உடற்ப்பயிற்சி

ஈ) மற்றவை

பாகம் ஆ ---பகுதி- II

இரத்தக் கொதிப்பு மற்றும் சிறுநீரகக் கோளாறு தொடர்பான கேள்விகள்

வ.எண்	கேள்விகள்	ஆம்	இல்லை
1.	உங்களுக்கு இரத்தக் கொதிப்பு மற்றும் சிறுநீரகக் கோளாறு பற்றித் தெரியுமா?		
2.	உங்களுக்கு இரத்தக் கொதிப்பினால் சிறுநீரகக் கோளாறு வரும் என்று தெரியுமா?		
3.	உங்கள் குடுமபத்தாரில் யாருக்காவது இரத்தக் கொதிப்பினால் சிறுநீரக கோளாறு வந்தது உண்டா?		
4.	இரத்தக் கொதிப்பிற்கு முன்னால் உங்கள் வேலையில் மன அழுததம் வந்தது உண்டா?		
5.	உங்களுக்கு சிறுநீரகக் கோளாறுக்கு முன்னால் ஒவ்வொரு பரிசோதனையிலும் உயர்ந்த இரத்த அழுத்தம் இருந்தது உண்டா?		
6.	சிறுநீரகக் கோளாறுக்கு முன்னால் உங்களுக்கு பின்வரும் ஏதாவது அறிகுறிகள் இருந்தது உண்டா? அ) விடியற்காலை தலைவலி ஆ) உடல் வீக்கம்(முக்கியமாக முகத்தில்) இ) குறைந்த சிறுநீர் கழித்தல் ஈ) மூச்சு இளைப்பு உ) உலர்ந்த தோல் ஊ) எடை கூடுதல்		
7.	சிறுநீரகக் கோளாறுக்கு முன்னால் உங்கள் இரத்தத்தில் புரதச்சத்து இருந்தது உண்டா?		

8. சிறுநீரகக் கோளாறுக்கு முன்னால் உங்கள் இரத்தத்தில் உப்புச்சத்து உயர்ந்து இருந்ததா?

9. உங்கள் உப்புச்சத்து அதிகரிப்பின் காரணாமாகச் சிறுநீரக மருதுவ நிபுணரிடம் சிகிச்சைக்காக ஆலோசனை பெற்றது உண்டா?

10. உங்கள் இரத்தக் கொதிப்பிற்கு பின்னால் வருடந்தோரும் முறையான உடல் நல பரிசோதனை செய்தீர்களா?

11. முறையான உடல் நல பரிசோதனை மூலம் சிறுநீரகக் கோளாறு முன்னாதாகவே கண்டரியமுடியுமென நீனெக்கீற்களா?

12. இரத்தக் கொதிப்பிற்கு பின்னால் கீழ்கண்ட குறிப்புகளை கடைபிடித்தீர்களா?

அ)உப்புச்சத்து குறைந்த உணவு முறைகள்

ஆ) தண்ணீர் குறைவாக அருந்துதல்

இ)கொழுப்புச்சத்து குறைந்த உணவு முறைகள்

ஈ) மது அருந்துதல் மற்றும் போதைப் பொருட்களைத் தவிர்த்தல்

உ)புகைப்பிடித்தலை நிறுத்துதல்

ஊ)முறையான எடை பரிசோதனை

13. சிறுநீரகக் கோளாறுக்கு முன்னால் இரத்த அழுத்தத்தைக் குறைப்பதற்கான மாத்திரைகளை முறையாக எடுத்தீர்களா?

14. எப்பொழுதாவது கட்டுபடுத்த முடியாத அளவில் இரத்த அழுத்தம் அதிகரித்து இருக்கிறதா அல்லது அதற்காக முறையான சிகிச்சை பெற்றது உண்டா?

15. இரத்த அழுத்தத்தைக் குறைப்பதற்கான மாத்திரைகளின் மூலமாக எப்பொழுதாவது குறைந்த இரத்த அழுத்தம் வந்தது உண்டா?

BENEFITS AND STEPS TO CONTROL THE BLOOD PRESSURE.

INTRODUCTION.

High blood pressure is a common condition among renal patients that can lead to serious complications such as strokes, cardiac problems and End Stage Renal Disease(ESRD). Therefore, blood pressure control is important factor to prevent complications among renal patients.

BENEFITS OF BLOOD PRESSURE CONTROL AMONG RENAL PATIENT.

- Helps to slow the progression of renal
- Decreases the incidence of cardiac problems and stroke among renal disease patients.
- Helps to reduce the protein loss through urine.

STEPS TO CONTROL THE BLOOD PRESSURE.

Steps to control the blood pressure by making lifestyle changes.

1. **Dietary Modification:**

- Eating fresh fruits, vegetables, low-fat, and fiber rich diet.

- Reducing the salt intake of 2gm/day or less than 2gm/day, avoiding salty foods like pickles, packed tinned item and fast foods.
- Reducing caffeine intake.

2. Work modification:

- Avoid heavy lifting.
- Avoid stressful job.

3. Exercise:

- Reducing excess weight.
- Increasing physical activity such as walking, swimming or cycling and exercising regularly.

.

4. Stress reduction (Relaxation) technique:

- Meditation.
- Yoga.
- Biofeedback.
- Progressive muscle relaxation.
- Psychotherapy.

5. Changing habits:

- Quitting alcohol and smoking.
- Avoiding tobacco products.

6. Compliance to treatment:

- Monitoring regular blood pressure and (intake of antihypertensive drugs if required).
- Regular treatment modalities and follow up.

MIOT COLLEGE OF NURSING

BENEFITS AND STEPS TO CONTROL THE BLOOD PRESSURE